Lenition inhibition in Liverpool English

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This article integrates aspects of synchronic and diachronic phonological theory with points relevant to the study of a nonreference accent in order to investigate the patterns of consonantal lenition found in the variety of English spoken in Liverpool, England. Points of contact with variationist approaches are addressed, partly because the lenitions are variable processes. An implicational understanding of lenition is developed, thanks to which it is possible to describe the prosodic and melodic environments which inhibit the lenitions. New data from a small corpus investigation into Liverpool English are presented and a theoretical and practical methodology is proposed, which enables the data to be investigated. The descriptive focus is on the segments /t/ and /k/, which are typically realized as affricates or fricatives unless the lenition is inhibited. A notion of 'melodic lenition inhibition' is developed to account for some of the inhibitory patterns, whereby the sharing of autosegmental phonological elements gives a segment 'strength' in certain environments.

1   Introduction

If the constructs of synchronic theoretical phonology are correct, then we can expect them to be useful in the description of the patterns of sociophonetic variation that exist in contemporary language varieties. And if the discoveries of historical phonology are real, then we can expect to find analogues of attested sound changes in such varieties. Considering these points, this article has three goals.[1] Firstly and secondly, it seeks to investigate certain aspects of both of these conundrums with the aid of a nonreference accent of English.[2] The third goal is to serve as a contribution to the description of the accent which is the source of the data for discussion.

I focus on the notion of 'lenition' (which has a definite, if slightly unclear, place in the universe of historical and synchronic phonology), as found in the variety of

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[1] A version of this paper was presented at the conference on 'Linguistics and the English Language' held at the University of Toulouse – Le Mirail in July 2000. Thanks are due for comments received from the audience there. I have also benefited from discussion with Phil Carr, Clive Grey, Andrew Hamer, Catherine Sangster, Joan Beal, Jacques Durand, Sharon Unsworth, and Kevin Watson. It will be clear that those named here would not necessarily agree with any of the conclusions that I draw here or with any theoretical or methodological point. All errors are entirely my own.

[2] I use the phrase 'nonreference accent' here for want of a better term. It is easier to argue that there are standard (and hence, by implication, nonstandard) grammars and lexica of English than it is to claim that there are standard accents. Idealizations such as 'RP' and 'General American' can reasonably be labelled 'reference accents' because they have been well described in their own right and are frequently used as an aid in the description of other accents. It seems problematic to describe them as 'standard' accents, however, because they are spoken by such a small proportion of the population and are not overtly taught in schools. It is also true that RP has little cachet for many British speakers of English (see Foulkes & Docherty (1999a) and the references cited there).

English associated with the city of Liverpool and neighbouring areas in the north-west of England. New data and arguments relevant to the paper's three goals are presented, and I briefly address the question of 'what lenition is' and how a diachronic understanding of lenition might fit with a synchronic model of phonology. Finally, a notion of 'lenition inhibition' is developed; this seeks to account for aspects of the patterns of lenition which are found in the variety under discussion, and also to have a certain universal applicability.

As an initial illustration of the topic under discussion here, the data in (1) represent typical pronunciations of certain words in the variety of English in question. To draw the reader's attention to the segments in question, the letters which represent the segments in the spelt form of the word are given in bold type, a convention which will be adopted throughout the article.

(1) *crime*   [kxɾaɪm]
    expect   [ɛxspɛxt]
    time   [tsaɪm]
    night   [naɪθ̠]

Certain segments which typically have stop realizations in other varieties are often realized as fricatives or affricates in Liverpool English. Questions regarding the exact nature of the realization of these segments (including an explanation of the transcription [θ̠] with its subscript diacritic), and of the phonological environments where these realizations occur, are addressed in the latter sections of this article.

A range of factors are worthy of investigation in connection with these patterns of lenition, including (i) its sociolinguistic variation and patterning, (ii) its historical introduction into the variety (i.e. its 'causation' – whether it is an endogenous innovation or an exogenous/contact-induced borrowing), (iii) the phonetics and phonology of what precisely happens in the lenitions, (iv) the phonology of where the lenitions occur (i.e. their phonological environment). In this article, I chiefly discuss points connected with the latter two factors, and especially those relevant to the last one. It is not possible to engage with all these points at the same time. Part of the point of this study is that the lenitions are not as simple as they have, at times, been portrayed in the little previous work which mentions them. However, the lenitions are examples of a common and much discussed type of phonological process and can thus help to shed light on important phonological discussions.

The article is structured as follows: section 2 deals with the theoretical background and points of contact with this study; it also details a set of methodological assumptions which are made here and which are necessary at a certain stage of investigation, such as that discussed here. Section 3 discusses the notion of 'lenition' in some detail and presents the understanding of the term that I assume. Section 4 brings together the notions of 'lenition' and 'Liverpool English' and explains the adopted method of investigation. Section 5 describes some of the types of lenition found in Liverpool English in a phonologically informed way. Finally, section 6 draws some theoretical conclusions and section 7 draws general conclusions. Much of the empirical part of the article is at the stage of description, a necessary stage in

the understanding of any process, although a certain amount of explanation is attempted in section 6.

2   Theoretical background, assumptions, and points of contact

This section briefly describes how the discussion of lenition and its inhibition is to be played out against the background of three linguistic subdisciplines: 'accent studies', 'theoretical phonology', and 'historical phonology'. This is partly to explain my understanding of them (as this will, naturally, influence the discussion), and also to show where there are points of contact between this study and previous and future work.

   This section also deals with certain necessary methodological assumptions. The article's title presupposes that there is such a thing as 'lenition', and that it can be 'found' in 'the' variety of English associated with the city of Liverpool. These are all problematic notions. Some of them will be justified explicitly in this section, but others will simply be tacitly assumed, while acknowledged to be problematic. Where the latter is the case, this is not intended to imply that the problems associated with such notions are deemed unimportant or uninteresting, but rather to imply that certain things must be put aside in order to see any of the wood for the trees.

2.1   Accent studies

Foulkes & Docherty (1999a) introduce the label 'accent studies' as a cover term for work which focuses on 'accent variation' (that is, the ways in which accents of a language differ from one another). This field of enquiry naturally takes in aspects of dialectology, sociolinguistics, phonetics, and phonology. The work described here would like to see itself, in some sense, as a contribution to the discipline of accent studies, as applied to the accents of British English. While it will be clear from the approach adopted below that the work is not 'variationist' itself, the final understanding of any linguistic variety will require both the 'phonological' approach adopted here and a variationist 'sociophonetic' approach.[3] The study of variation is a vital part of our understanding of any variety of any language, but it is not everything. I argue below that resolutely phonological effects can be seen to condition the patterns of lenition that exist in Liverpool English. How these phonological factors are taken up and implemented by speakers is subject to variation, a point discussed in sections 2.1.1 and 2.2.4, but that does not mean that they can be ignored.

2.1.1   What this study is not: variationist sociophonetics
Variationist sociophonetics has contributed massively to our understanding of how languages and their speakers work. Current work in this paradigm is vital, in both

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[3] The distinction adopted here between 'phonological' and 'variationist' can be read, respectively, as 'connected with the discipline of theoretical phonology' and 'connected with the discipline of variationist sociophonetics'.

senses of the word: 'necessary' because it tells a truth, and 'lively' because considerable work in accent studies is carried out along these lines, and it is probably work of this type that has contributed most to our understanding of the accents of English. But this article is written from the perspective that this is only part of the truth.

Even where processes, such as lenition, are variable, it is clear that phonological factors can influence them because such processes tend to be restricted to certain phonological environments. Theoretical phonology has discovered that these environments can be very fine-grained and are themselves of considerable interest; it is common in such work to try to explain why similar processes tend to occur in similar ways and in similar environments in language after language. Where a phonological process is sociolinguistically variable, an accurate description of the environment in which the process occurs is vital if we are to truly understand it. This is the approach of this study. Of course, this requires a certain abstraction away from the very variation which is one of the key points of interest for variationists, but at the point in investigation where the nature of a particular process itself is in question, this is justified.

Docherty, Foulkes, Milroy, Milroy & Walshaw (1997) promote the importance of systematic corpus-based investigation as a check for ad hoc or intuition-based observation, pointing out that 'phonological' investigations from a 'theoretical' perspective can miss data that would be counterevidential to any absolute generalization. Their discussion is relevant to the current study as they deal with accounts of a type of phonological process ('glottalization') which has been claimed to occur only in certain phonological environments. They write that: 'it is in general unwise to make a negative claim to the effect that glottalization does not occur in this position, even if the occurrences are rare. Variationist accounts assume that the occurrence or non-occurrence of glottalization in different environments is quantitatively more or less likely rather than categorical' (1997: 290). This point is important, but equally important is the above recognition that phonological factors can be relevant when seeking to identify where a process *rarely* or *hardly ever* occurs as opposed to those environments where it might occur commonly. While it may not be the case that complete categorical inhibition of a process will be observed, major tendencies are still worthy of investigation and explanation.

Section 5 reports on auditory, impressionistic analysis of naturalistic speech. It would be interesting (and at a later stage of investigation, vital) to compare this with instrumental acoustic analysis to see what correlation there is between the results which can be obtained by perceptual and instrumental investigation, but neither of these approaches is necessarily 'right' at the expense of the other. The fact that these approaches have complementary drawbacks (respectively, these are: relying on impressionistic interpretation and the inability to cope with large amounts of natural data) means that both are valid because each avoids the other's drawbacks. It is important to strike a balance between 'phonological' theory-driven investigation and 'phonetic' observation-driven investigation.

Finally in this section, it is worth noting the way in which theoretical phonology can contribute to sociophonetics. It is important that researchers have a clear phonological understanding of any variable which they investigate. If, for example, an underlying segment 'α' is only subject to a particular (variable) process 'β' in a specific phonological environment (or set of environments) 'γ', then a researcher investigating the likelihood that β occurs to α must understand γ just as well as they understand α and β. If γ is not understood, it is inevitable that a researcher would reach the wrong conclusion regarding the frequency with which β occurs to α for any speaker in any particular style. This is because only the occurrences of α in γ should be considered as candidate forms to undergo the process in question, but this can only be done if γ is properly understood, of course. This is particularly relevant if various styles of speech are considered. The occurrences of α in a reading passage or word list must be carefully considered in terms of γ, especially when comparing the variability with which β affects α in such different styles, as a means of gaining insight into different levels of formality.

The consideration of phonological environments, such as γ, and their connection with processes such as β, is one of the key concerns of theoretical phonology. At the very least, phonology can provide hypotheses for testing what the γ might be for any β affecting any α. Sections 5 and 6 are devoted to γ-type, environmental concerns.

2.1.2   *In search of a new NORM?*

Traditional dialectological work, such as the *Survey of English Dialects* (see, for example, Orton, 1962), sought out a particular type of informant, frequently referred to by the suggestive acronym 'NORMs', which stands for 'nonmobile, older rural males' (see Chambers & Trudgill, 1980 and Stoddart, Upton & Widdowson, 1999). These speakers were prized because it was felt that they would speak the most 'genuine' form of the dialect under investigation. It is generally recognized that the focus on NORMs, to the exclusion of practically all other categories of speakers, is a problem in such work, not least because 'nowadays the greatest proportion of the population is mobile, younger, urban and female' (Chambers & Trudgill, 1980: 35).

It would be methodologically dubious to focus exclusively on nonmobile older rural male speakers (and rather difficult in the case of urban Liverpool), but, as Stoddart et al. (1999) discuss, the concept is not entirely methodologically bankrupt. The idea that certain speakers of a variety are more 'typical' than others does not seem absurd; the lay description of certain speakers as having a 'strong' or 'broad' accent is an attempt to describe a linguistic reality – that certain native speakers of a nonreference variety typically use fewer 'reference-like' features in their speech than others. It seems reasonable to claim that the speech of such speakers would repay investigation. Such speakers will clearly not be of a rural background when investigating urban varieties, and they will not necessarily be old, given that urban varieties typically have substantial covert prestige, especially among the young. It would also be questionable to focus only on males, largely for the reason that it

would be odd to exclude the majority of speakers in a speech community at this stage of investigation; it is clearly the case that female speakers, too, vary to the extent that they use typically nonreference features, and some use a great many.

If there is a point in searching for speakers who might play a similar role to that played by NORMs in traditional dialectology, they should not be 'Os', 'Rs', or 'Ms' and the 'N' for 'nonmobile' is doubtless questionable, too. However, to the extent that traditional dialectology produced interesting results, it is worth searching for a 'new NORM' if we want to understand the phonological conditioning of any feature which is claimed to characterize an accent. As will become apparent in section 4, this study seeks to investigate a set of such speakers in an attempt to ascertain, for one very specific aspect of Liverpool English, what the 'local form' spoken in the area really is in terms of its linguistic patterning. The notion of a 'typical local form' is one that is frequently assumed in work on nonreference accents (for example, in Newbrook (1986) where it is also described as an 'extreme' variety), without any explanation as to how we know what such local forms are.

It will be clear from the above and the previous section that this study does not seek to investigate a representative sample of all speakers of English from Liverpool, nor of all speakers of 'Liverpool English', a concept addressed in the next section. Some work of this type exists for Liverpool English (de Lyon, 1981 and Sangster, 1999, to appear) and more is clearly necessary.

2.1.3   *Methodological assumption 1: 'Liverpool English'*
Although it has thus far been blithely assumed, the notion 'Liverpool English' is itself a complex one. A simple problem in this regard is that not all forms of English that are spoken in the city of Liverpool count as 'Liverpool English'. As in any cosmopolitan, multicultural area, many accents are spoken by the inhabitants of the city. It is nonetheless the case that 'the Liverpool accent' is something which most British speakers would claim to be able to recognize and associate with the city and surrounding areas. The city itself is well known as one of the major urban centres of England; it is situated in the north-west of the country, near Wales and Manchester, on the coast and at the mouth of the river Mersey (hence the term 'Merseyside' is used to refer to Liverpool and its surrounding area).

Just as all 'languages' and 'lects' are abstractions over sets of idiolects which seem to native speakers to have enough in common with each other to be identifiable as one variety, so it is with 'the Liverpool accent'. And while it is obviously not the case that all people with an identifiably 'Liverpool' accent speak exactly alike, there is a set of phonetic and phonological features which are characteristic of speakers who have a background which involves Liverpool or the surrounding area and which, especially in combination with each other, mark out a speaker as 'having a Liverpool accent'. When these speakers speak English, then they can be claimed to be speaking 'Liverpool English'.

The popular name for the variety is 'Scouse' (just as 'Cockney' refers to 'London English'). While this name is not generally felt to be a derogatory term (see Sangster,

1999), the variety itself is often seen as highly stigmatized in Britain (although this prejudice does not seem to extend far outside the British Isles). The accent has been rated low in surveys and experiments carried out in Britain to set up subjective 'aesthetic' rankings (see, for example, Giles & Trudgill, 1978 and *Liverpool Echo*, 2000), no doubt due to the social associations with the city of Liverpool among the British population. These are often negative, a fact which is doubtless largely due to the high levels of unemployment and poverty which the city has suffered from and the effects connected with this.[4]

The serious study of Liverpool English can be traced back to Knowles (1974), which provides a general overview of the variety and substantial detail on several phonological points, especially on the suprasegmental level. Knowles also discusses segmental phonetics in detail, but the phonological patterning of features is not treated in depth. Subsequent work on the variety consists principally of Knowles (1978), de Lyon (1981), Newbrook (1986 and 1999) and Sangster (1999, to appear). Some discussion is also found in Harris (1990 and 1994) and general volumes on English accents, such as Wells (1982) and Hughes & Trudgill (1996).

While Knowles (1974) and the other studies listed above describe the key features of the variety, the detail of many of these features is still not known. As will be apparent from the discussion above, this study seeks to advance the description and understanding of one of these features, namely the patterns of obstruent lenition which are found in the variety. It thus aims to contribute to the description of a linguistic system which is, in comparison with many others, still underdescribed.[5]

2.2 *Theoretical phonology*

In this section, I briefly outline the model of phonology which is assumed in later sections. This will prove necessary for the approach to phonological explanation which is discussed in section 6. One common distinction in much of contemporary phonological theory is that between theories of 'prosody' and of 'melody', and a distinction of this sort will be important in what follows. I understand the former to involve considerations of stress, syllable structure, and of morphophonological boundaries; it thus deals with 'suprasegmental' structure, although this paper does not consider prosodic levels above the foot. The latter considers segmental identity and the nature of the elemental features of which phonological segments consist; it thus deals with 'subsegmental' structure. It is sometimes the case that prosody is

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[4] These negative connotations may now be changing (see, for example, Foulkes & Docherty, 1999a) and, in any case, there is certainly considerable covert prestige attached to the variety, and it is currently spreading to be spoken in rural areas around Liverpool and Merseyside (see, for example, Newbrook, 1986 and Trudgill, 1999).

[5] The work detailed here is part of a wider research project on Liverpool English, which is currently in progress and involves other researchers at Edge Hill College. As with any linguistic system, this variety deserves and demands substantial in-depth study, and it is anticipated that other work will emerge, both on the phenomena under investigation here and on other features of the accent.

more relevant to the description of the phonological environment in which a process occurs and that melody is more relevant to the description of the 'change' that occurs to a segment in a process. However, this is by no means always true, and the discussion in section 6 involves cases where an understanding of the melodic environment is crucial for the full description of a process.

The phonological model assumed here is particularly influenced by those traditions which have taken the concept of lenition seriously, such as Dependency Phonology and Government Phonology, but it also reflects other work dealing with subsegmental structure in phonology. No model is taken on wholesale, however, and the constructs which will prove necessary later are briefly discussed below, in subsections 2.2.1 and 2.2.2.

There is neither space nor need to provide extensive justification for the model assumed, as the concepts used here are justified in those places where they were introduced into phonological theory. Generally, I seek to use a 'simple' and inclusive model of phonology, working with as small a set of entities as possible, and trying not to multiply theoretical constructs beyond those which are necessary.

2.2.1   Prosody: suprasegmental assumptions

I assume little that is theoretically novel in terms of prosody, except perhaps the set of phenomena which I group together under the heading. Syllabic constituents such as 'onset', 'nucleus', and 'rhyme' are widely recognized as indispensable in phonology and will feature here in the description of the environment for lenition and its inhibition, as will some form of the notion 'coda'.

I assume that material associated to non-nucleic positions is interpreted as a consonant (otherwise it is interpreted as a vowel). I also consider the position of a segment relative to word boundaries to be prosodic (in the sense that it is nonmelodic information), and at times I refer to simple prosodic segmental adjacency.

I also assume below that syllables are either stressed or unstressed and that this groups syllables into prosodic left-headed 'feet' such that lexical stress can play a role in the description and explanation of phonological processes.[6]

2.2.2   Melody: subsegmental assumptions

Uncontroversially, I assume that segments are divisible into a set of subsegmental 'distinctive features'. Quite mainstream phonological work in the 'feature geometry' tradition (see, for example, Clements & Hume, 1995) assumes that at least certain features are privative. This means that such features are either present or absent in phonology and that only the 'positive' value of a feature can be active, because 'negative' values do not exist. Work in several phonological frameworks which have been developing since the 1980s assumes that all features are privative, for example

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[6] For some not so stipulative discussion of these concepts, see, for example, Harris (1994), Honeybone (1999) and Ewen & van der Hulst (2001).

in Dependency Phonology (see Anderson & Ewen, 1987), Particle Phonology (Schane, 1984), Government Phonology (Kaye, Lowenstamm & Vergnaud, 1985). I follow this assumption here and refer to these features as 'elements' (following Kaye et al., 1985) and enclose them between vertical slashes (in the spirit of Anderson & Ewen, 1987).

I further assume that elements are attached to a root node, that root nodes are attached to slots on a skeletal timing tier and that it is the relationship between the two that accounts for segmental length. The notion 'segment' can then be defined as a mapping between the root tier and the timing tier which may be one-to-one or one-to-two in either direction, but where at least one of these tiers may only have one member.[7]
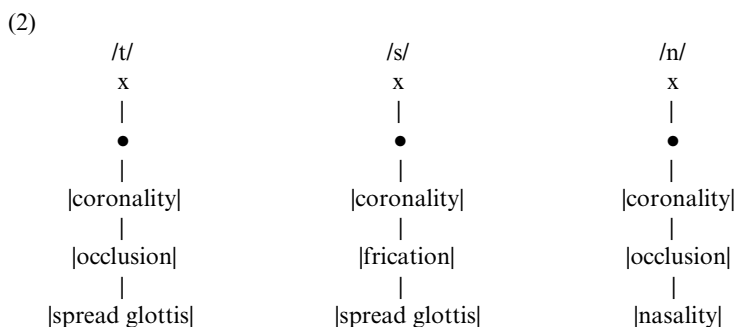
The elements are assumed to be autosegmental in that assimilations are accounted for by elements spreading from one segment to another, so that one element can be attached to more than one segment. This notion of multiple attachment also allows for the lexical sharing of elements by more than one underlying segment (that is, sharing which is not derived by a process in the phonology), which can account for certain phonotactic co-occurrence restrictions.[8]

Some key tenets of many of the traditions which assume an 'elemental' approach are: (i) segments can consist of only one element (for example, the 'corner vowels' /i, a, u/, which seem to be the most unmarked in language inventories, consist of only one element: |I|, |A|, |U|, respectively)[9] and (ii) more complex segments are made up of more than one element (to stay with vowels, this means that /e/ consists of |I| and |A|, for example, and /o/ consists of |U| and |A|). This approach can be extended through the use of other elements to compose consonants, and attempts to account for which set of elements is needed have been a fruitful source of debate in the literature. To avoid unnecessary and distracting discussion, I assume a simple set here. Where it is necessary to represent them, I simply name them, enclosed in vertical slashes, as in (2). The representations show how three segments can be described for most varieties of English:

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[7] As shown in (3), long vowels and geminate consonants are represented on the approach adopted here with two timing slots but only one root node; the opposite situation occurs in affricates and other complex segments, where more than one root node (and hence melody) is attached to one timing slot. On some approaches, geminates are represented with two root nodes as well as two timing slots (as discussed in Elmedlaoui, 1993, for example). This latter approach has the effect of clearly indicating that geminates have certain properties which make them seem like clusters and other properties which make them seem like single segments. Little of any import rests here on the issue of whether geminates have two root nodes or not, however, and I adopt arguably simpler representations with only one.
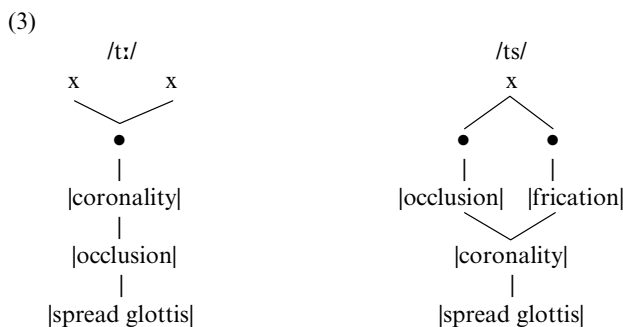
[8] Given the definition of 'segment' adopted here, such an arrangement would still count as two underlying segments, however, as there would be (at least) two timing slots and two root nodes.

[9] This shows my convention of placing elements within vertical slashes; anything enclosed within such slashes is to be interpreted as a privative phonological element. The representations used here are not quite those of mainstream Government Phonology or Dependency Phonology.

(2)

/t/	/s/	/n/
x	x	x
|	|	|
●	●	●
|	|	|
|coronality|	|coronality|	|coronality|
|	|	|
|occlusion|	|frication|	|occlusion|
|	|	|
|spread glottis|	|spread glottis|	|nasality|

The 'x' represents a timing slot and the '●' a root node. Although this is not obvious in the diagrams in (2), each of the elements can be thought to be attached to the root node individually. The element |occlusion| represents complete closure in the oral tract, which differs obviously from |frication|.[10] Representations like those in (2) and (3) include the elements that will suffice for the segments considered in this paper. Others are needed to deal with other segments.

The representations in (3) show how one-to-two mappings between the skeletal and root tier can be used to represent geminates and affricates:

(3)

/tː/	/ts/
x x	x
\ /	/ \
●	● ●
|	| |
|coronality|	|occlusion| |frication|
|	\ /
|occlusion|	|coronality|
|	|
|spread glottis|	|spread glottis|

This type of phonological structure will be implicit in the discussion in sections 3 and 5 and become explicit again in section 6, where it will be vital to the understanding of melodic lenition inhibition which is developed there.

2.2.3 Methodological assumption 2: phonological and phonetic segments
In what follows, I assume a simple relationship between 'underlying' and 'surface' segments. There is no space here to justify this model of derivation, but it is something close to the null hypothesis. The assumption that underlying segments can undergo phonological processes means that there is a stage before such processes occur and a stage after they have occurred. This gives us two significant levels in

[10] Most of the assumptions made in these representations will not be overtly justified here. They are not all uncontentious, however; for example Harris (1990) has influentially claimed (in not quite these words) that |frication| is also a part of plosives, representing the noise of the stop release. It is also more common to represent elements using only single letters, so that |occlusion| is represented as ? in Government Phonology, and |nasality| as N. See Honeybone (in preparation) for some detailed discussion of and extension to the representations adopted here.

phonology, and the lenition processes described below are understood to affect underlying segments in order to derive surface segments.

As is conventional, underlying representations are enclosed in slash brackets and surface representations in square brackets. In sections 5 and 6, where I discuss some of the patterns of lenition that exist in Liverpool English, I assume, uncommented and as a given, that there are underlying categories of stops (e.g. /k/) which are related to surface stop, fricative, and affricate categories (e.g. [k], [x], and [kx]). The former is mapped on to the latter in a process which is described as 'is realized as' or 'is represented as'. There are many theoretical problems with such a simplistic position, but, again, constraints of space preclude their detailed discussion.

2.2.4 Accent studies and theoretical phonology

Idealized reference accents have been well described, and thanks to the good understanding that we have of these accents, they have often provided the empirical basis for theoretical debate in phonology. Most nonreference accents, by comparison, have received little attention, especially in theoretical phonology. There have been several clear exceptions, such as, for example, Lass (1976), Carr (1991), and Harris (1994), but in general the potential that nonreference accents present to increase our understanding of phonology is underrealized.

The discussion here seeks to extend the empirical coverage of phonological models by considering some data from Liverpool English, a goal which is complementary to a focus on 'accent studies'. It is to be hoped that the notions of theoretical phonology can help us to understand such accents. The variability in some of the processes which they feature is one of the reasons why nonreference accents are currently underunderstood in phonological models, but these problems are not such that they render the task impossible. Only detailed and intricate examination of such accents will allow two important things to be realized: (i) a full description of the accents themselves, and (ii) their potential to shed light on the ways in which natural language phonology works.

2.3 Historical phonology

In coming sections, especially in section 3, several sets of data are discussed. Some of these might best be described as synchronic and some as diachronic in nature. This apparent mixing of categories is not (I hope) due to confusion, but rather is justifiable on the assumption that many types of diachronic phonological change can best be seen as the introduction of a phonological process into a linguistic system where previously it was absent, and, conversely, the synchronic phonological processes of any language must have come from somewhere.

The relationship between synchrony and diachrony is a complex one and it would go way beyond the space available here to attempt to separate the two in a principled way.[11] It seems clear, however, that while one type of phonological change may

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[11] See Honeybone (in preparation) for a more satisfactory discussion of the relationship between synchrony and diachrony and a review of some of the voluminous literature on the topic.

involve the acquisition by a new generation of a set of underlying representations which differ from those which had been acquired by their parents, another is the diachronic innovation of a phonological process. It is this type of change which is relevant here as it provides the link between the contemporary data and the historical data that I discuss. While some of the data mentioned here may be diachronic in provenance, the real focus in examining such data is on the phonological process which it represents and which was once a synchronic fact.

Evidence for such past phonological processes can be fossilized as diachronic changes of the first type, when a process has become lexicalized into the underlying representations of a language. It will be important below that the phonological environment in which the ex-process occurred (its 'structural description') is also fossilized, as the 'exceptions' to a change. In this way the exceptions to changes can be seen to be phonologically conditioned because they show where a previous phonological process did not occur. It is important, of course, through the use of philological evidence, to be sure that a process is accurately reconstructed and that possible subsequent changes are taken into consideration.[12]

2.3.1   Methodological assumption 3: historical and synchronic phonology

It is thus an assumption of this study that synchronic phonological processes which cause underlying segments to be realized in ways which differ from their default realizations can, with the right caveats, be seen as the same kind of thing as certain sorts of diachronic phonological changes. It is chiefly this assumption which will make it interesting to compare what can be currently observed to occur in Liverpool English with the centuries-old subject matter of historical phonology. And it is this which ties us in with the first paragraph of this article: we can expect to find analogues of attested sound changes in contemporary linguistic varieties.

It is further assumed that processes exhibit phonological naturalness when they are first introduced into a language, following an established tradition in phonology (see, for example, Bach and Harms, 1972 and Hale and Reiss, 2000, although I do not draw the same conclusions as these authors from the points that they consider). This means that any approach to phonology which considers naturalness to be in any way an interesting phenomenon must keep close to the diachronic innovation of new phonological processes.

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[12] It is also important to be sure that grammaticalized relics of past phonology are not mistaken for synchronic processes. This means, for example, that 'mutations' such as those which occur in Celtic languages cannot be directly compared with truly phonological processes (see, for example, Martinet, 1955, Ball and Müller, 1992 and Grijzenhout, 1995 for description and discussion of such mutations). Even though these mutations are often labelled 'lenitions' and indeed resemble synchronic lenitions because they involve correspondences between segments such that, for example, [k] corresponds with [x], the true lenition process (given the way that I am using the term here) is a diachronic entity, which can be clearly seen in the way that the environments in which the mutations now occur are dictated by lexical and morphosyntactic considerations.

2.3.2   Methodological assumption 4: historical phonology and variation
The data discussed in 'long-distance' historical phonology sometimes have an advantage for the theorist over synchronic data in that they are clearly categorical (in the sense of, for example, Lass, 1997). They thus allow us to peer over sociolinguistic realizational variation in the search for phonological conditioning. This is, at least in part, a false picture, given that the introduction of a phonological process into a variety is typically accompanied by variation, as variationist socio-linguistics of the type briefly discussed above (in section 2.1) has clearly shown. But in another sense, the picture is a true one. Just as theoretical phonology abstracts away from synchronic variation, so some historical phonology (often described as 'neogrammarian') can deal with phonological factors which can be seen to have been at work in the genesis and patterns of adoption of a change.

This fits in with a picture of phonological change which envisages (i) a 'stable' stage before any change, (ii) a stage at which a variable process can be observed to be part of a variety, and (iii) a second 'stable' stage, which is different from the stage in (i), in line with the full extent of the process from (ii), and is without real variation. One plausible position might be to claim that the phonological change in question has 'happened' once stage (iii) is reached. This would fit in with the classic neogrammarian position and might lead us to expect that we could only observe the phonological patterning of a change after it has become categorically embedded into a system. However, I have already argued (especially in section 2.1) that phono-logical factors can be seen to be at work even in the stage in which a process is variable, and this means that we can recognize that stage (ii) is also a locus of phonological change.

We can further recognize that situations occur where the variation in a process is stable such that stage (iii) may never be reached. In such cases a phonological process may never become categorical or lexicalized into underlying representations and successive generations will simply acquire a variable phonological process. The lenition in Liverpool English discussed in sections 5 and 6 is probably best described as this kind of phonological process, exhibiting stable variation. This contrasts with some of the lenitions from other languages which are to be introduced in section 3 which are categorical, either in the sense that they are a nonvariable synchronic phonological process or are reconstructed from the phonological fossils left after a change in underlying representations.

3   What is lenition?

This is a question which has often been asked in both historical and synchronic phonology. Many answers have been offered and there is a large literature on the topic, including, for example, Lass & Anderson (1975), Lass (1976), Foley (1977), Escure (1977), Lass (1984), Dressler (1985), Anderson & Ewen (1987), Bauer (1988), Harris (1990, 1994), Kirchner (1998), Ségéral & Scheer (1999), Lavoie (2001). The basic idea that the term tries to express has been present in phonological thought for

centuries, along with allied terms such as 'weakening'.[13] The patterns which have been observed in lenition processes have at times played an important role in the development of phonological and phonetic theories. Much consideration has also been given to the description of the phonological environments in which lenition processes occur and it is, in fact, this latter point which provides much of the basis for discussion below. I adopt here a broadly based approach to the definition of 'lenition', partly because much of my focus is not really on what lenition is; rather, the key question is 'where does it occur?' Because the topic has been so frequently discussed from such a wide range of perspectives, it would be pointless to attempt a comprehensive summary here. Instead, a brief discussion of certain key points follows after which it will be assumed that it is a real phenomenon.

The term 'lenition' is used to group together a number of segmental processes which are perceived to have certain properties in common. These properties include a similar set of conditioning environments and the perception that the processes involve some kind of phonological weakening. Classic lenition processes include: 'spirantization' (e.g. t → s), 'voicing' or 'sonorization' (e.g. f → v), 'debuccalization' (e.g. s → h) and 'degemination' (e.g. kk → k). It can be seen from this short list that effects of and on the place of articulation of a segment are not typically considered to be relevant to lenition, apart from in debuccalization, which can be seen as the loss of place (as in, for example, Lass, 1976, Harris, 1990). Lenition processes are 'unconditioned' or 'spontaneous' in the sense that they are not caused by neighbouring segments (unlike consonantal assimilations or vowel harmony, for example).

To the extent that these processes can be grouped together as types of weakenings, the implication is that there exist relationships between classes of phonological segments which can be characterized in terms of their relative (segmental) strength. One frequently cited definition of segmental strength (in terms of its opposite) is Vennemann's personal communication in Hyman (1975: 165):[14] 'a segment X is said to be weaker than a segment Y if Y goes through an X stage on its way to zero'. Any change from one segment type to another in this way is thus seen as a lenition; this ties in synchronic lenition processes with the types of process attested in phonological change.

In the lenition literature, attempts have been made to link phonological weakness and strength with several other phonological concepts, including a segment's

[13] The term 'lenition' was introduced in Thurneysen (1898). For a full discussion of the concept of lenition, which rejects some of the simplifying assumptions made here, see Honeybone (in preparation). This current paper does not deal with the 'causes' of lenition at all; it could well be, in fact, that not all types of processes which are grouped together as cases of lenition (both here and elsewhere) necessarily have the same kind of cause.

[14] Hyman is well aware of the conceptual problems that are associated with using this as a definition for lenition and he has since rejected it (personal communication). However, it is difficult to devise a better preliminary delimitation of the area of concern and this no doubt partly accounts for the frequency with which this short quotation is found as part of an initial attempt to define the concept in works which deal with lenition (including this one).
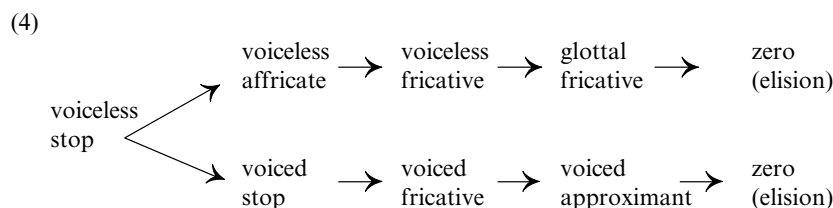
inherent sonority, its patterning of sequencing in syllabic constituents, segmental complexity, the openness or degree of resistance in the vocal tract which is associated with a segment, and the notion of a segment's perceptual salience. It is not an aim of this study to give a theoretically coherent definition of strength, however, although this would be important if lenition processes are to be unified as a single type of process or change, and steps have been made in this direction in Dependency Phonology and Government Phonology approaches, for example in Anderson & Ewen (1987) and Harris (1994); these points are discussed in Honeybone (in preparation).

3.1 *Which types of segmental process are instances of lenition?*

These considerations of weakening and of the patterns in phonological change have frequently been brought together to construct overarching lenition 'trajectories' or 'scales', which are intended to indicate what counts as lenition, in that stronger segments lenite along the trajectory to become weaker segments. These trajectories show how Vennemann's remark is to be understood, showing that the logical conclusion of lenition is taken to be elision.

Exhaustive lenition trajectories are difficult to construct; some such scales include a wide range of processes, some of which seem to be specific to the lenition of /t/. This vagueness is perhaps evidence that at least some of the processes that have been grouped together in the literature under the label 'lenition' do not really belong with each other as a unified process-type. However, I do not pick up this point here because most of the contentious process types do not feature in the Liverpool data. I argue overtly in section 3.2 for the inclusion of some of the types of processes found in Liverpool English as types of lenition.

A nonexhaustive but relatively traditional example of a lenition trajectory is given in (4); this seeks to include most of the commonest types of lenition as a series of stages. Some lenitions which provide evidence for this kind of scale will be discussed in section 3.3.1.2.

(4)

voiceless stop → voiceless affricate → voiceless fricative → glottal fricative → zero (elision)

voiceless stop → voiced stop → voiced fricative → voiced approximant → zero (elision)

This scale links all the types of process which are discussed below (except for glottalling, which is also briefly mentioned). Any movement in the direction of an arrow is considered to be a lenition.[15] It includes all the types of lenition that occur

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[15] Setting up a scale such as this, in terms of the processes that it includes, as well as those that it excludes, calls for some comment, but dictates of space prevent this here; see Honeybone (in preparation) for the requisite discussion. The terms 'voiced' and 'voiceless' are also worthy of comment in that they in fact

in Liverpool English; in fact, it includes more than these – the process of voicing will not prove relevant. Thus, to anticipate, the lenition found in Liverpool English is of the 'opening' type, not the 'sonorization' type (in the terminology of Lass & Anderson, 1975, Lass, 1984), in that it proceeds along the top line of the trajectory.

3.2   Is affrication really a type of lenition?

While most types of process featured in section 3.1 will be counted as lenitions here without further comment, the inclusion of affrication needs some discussion, given that certain authors have overtly claimed that it should not be seen as a type of lenition (for example, Foley, 1977, Escure, 1977, and Hyman, 1999). The affrication of plosives is a clear characteristic of Liverpool English, as we shall see in section 5 and there is good reason to view this as a type of lenition. This section explains why. I first deal with certain points which have been put forward to argue that affrication should not be counted as a type of lenition and then propose a further few reasons why affrication should indeed be seen as an instance of lenition.

If lenition is characterized as a loss in perceptual salience (as some claim, for example, Donegan, 1978 and Hyman, 1999), then affrication (e.g. t → ts) does not count as lenition because sibilant fricatives are extremely salient perceptually. However, this does not seem to be a good characterization of lenition, because it would mean that spirantization (e.g. t → s) would not count as lenition either because of the extremely high salience of [s]. Spirantization is one of the few processes which are never doubted as being types of lenition, however, so this would not seem to be the right result.

If lenition is characterized as element-loss (as in the Government Phonology of Harris, 1990, 1994), then affrication (which on this model would involve 'breaking' to form a complex segment) cannot easily be counted as lenition. However, voicing and degemination, which are normally considered to be instances of lenition, cannot be simply characterized as element-loss either, so this argument does not go through.[16]

In favour of viewing affrication as lenition, we can note that the connection which is often made between lenition and certain phonological environments means that it has been claimed that there are specific 'lenition environments' (we return to this point in the next section). Certain processes which feature undoubted lenitions in these 'lenition environments' (e.g. spirantization) also feature affrication (at times as an optional alternative to spirantization) in the same environment, as we will see below. Equally, affrication can be a diachronic stage on the way from stop to fricative, for example in the High German Consonant Shift (which we return to in section 3.3.1.2) where, for some situations, a set of stages are attested ortho-graphically: p → pf → f (e.g. *helpan* → *helpfan* → *helfen* 'to help').

cover several different categories but again, because this point is not really relevant in the following, it is brushed over here.

[16] In any case, Harris (1990) does, in fact, view affrication of this type as a case of lenition.

Finally, a theoretical consideration is that, if lenition is characterized as a shift towards |V| in the phonatory subgesture (as in Dependency Phonology e.g. Lass, 1984, Anderson & Ewen, 1987), then affrication must be counted as a type of lenition because the spirant part of an affricate is represented as |V:C|, and this introduces a |V| component.

3.3   Lenition inhibition (and lenition promotion)

As we have already briefly noted, a segment's phonological environment has long been recognized as a possible influence on the likelihood of lenition. An important role in this has often been assigned to factors such as phonetic stress or a phonological counterpart, such as prosodic licensing (see, for example, Harris, 1994 and also Ségéral & Scheer, 1999, who attempt to account for likely and unlikely lenition sites in terms of their position in a prosodic string and the phonological relationships between these positions).

While these considerations are important, they can and often do ignore the ways in which the melodic environment affects the likelihood of lenition. Well-known historical lenitions such as the /p, t, k/ → /f, θ, x/ of 'Grimm's Law' and synchronic lenitions such as Spanish /b, d, g/ → [β, ð, ɣ] have exceptions which are clearly determined by the melodic content of neighbouring segments. It is important in this regard to focus not only on where lenition is frequently seen to occur; it is equally important to consider where the lenition does *not* typically occur.

There are thus different ways of viewing the interaction between lenition processes and phonological environments: lenition could be seen as being favoured in characteristic lenition environments, which I refer to below as 'lenition promotion'. Equally, we could focus on the exceptions to lenitions in certain environments, which I refer to as 'lenition inhibition'. In fact, these are two sides to the same coin, and, as we will see in the next section, reference need only really be made to one of the pair. Much of the discussion of lenition in Liverpool English in sections 5 and 6 focuses on the inhibition of lenition. While it is important to consider what phonological processes can happen (or be diachronically introduced) where, the failure of any process to occur or be introduced is perhaps more surprising (see also Ségéral & Scheer, 1999).

3.3.1   Aspects of lenition inhibition

Once a lenition process is identified, be it spirantization, voicing, debuccalization or any other, the prosodic and melodic factors which govern the environment in which it occurs can be investigated. This section sets out some of the factors that are relevant in this regard. While the notion 'lenition-promoting environment' is briefly entertained, it is later put aside and focus is directed at the inhibition of lenition, which, I argue, is a more insightful way of interpreting the data.

The notion 'phonological environment' varies along a number of parameters which can at times be quite intricate. The conditioning environments for a process

can be characterized in terms of prosodic factors, such as (i) the relationship of a segment to syllabic constituents, (ii) the relationship of a segment to word boundaries, (iii) the relationship of a segment to stressed vowels, and also in terms of melodic factors, such as (iv) the nature of the segment (in terms of place, manner, etc.) preceding a segment, (v) the nature of the segment following a segment, and in some cases (vi) the nature of nonadjacent segments in long-distance interactions. Most of these (although not vi) are considered here as they are clearly important in the formalization of lenition environments.

It will be helpful in the following discussion to deal with the relatively pre-theoretical environments given in (5).[17] Different syllabic theories will formalize these environments differently and the representations in (5) will allow us to overlook this. The environments are by no means exhaustive (and some can overlap) but they will provide a solid basis for discussion. A key to the symbolic representations is also included in (5), as are informal glosses:

(5) A [__#] – 'word-final'
    B [__c] – 'pre-consonantal' or 'coda'   # = word boundary
    C [v__v] – 'intervocalic', 'medial'   c = any consonant
      Ci [v́__(v)] – 'foot-internal', 'post-stress'   v = any vowel
      Cii [(v)__v́] – 'foot-initial', 'pre-stress'   v́ = any stressed vowel
    D [c__] – 'post-consonantal' or 'onset'
    E [#__] – 'word-initial'

Many of these environments are quite straightforward. Environments A, Ci, Cii, and E are fundamentally characterized by prosodic concerns. Environments B and D are those where melodic effects might be expected to play a role, although it is chiefly environment D which will be considered in this connection; environment B will generally be understood in terms of its prosodic gloss – as a 'coda'.[18] The next two subsections consider some of the ways in which reference can be made (and has been made in previous literature) to these environments in connection with lenition promotion and inhibition. This is done by means of a brief discussion of some synchronic and diachronic lenition data, which will form the basis for comparison with the lenitions in Liverpool English.

3.3.1.1 'Lenition promotion'

Of the environments given in (5), those which are classically described as lenition-promoting are generally C [v__v] (especially Ci [v́__(v)]) and A [__#], and it is often also claimed that B [__c] favours lenition, too. Glottalling (e.g. t → ʔ), if accepted as a case of lenition (as a special case of debuccalization, which is widely recognized as a type of lenition process), can be used to show how the environments identified in (5) interact with such processes. The figures in (6), with data partly taken from Harris (1994), illustrate two patterns of synchronic glottalling: (6i) shows 'wide-

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[17] The formulation of these environments is partly inspired by Ségéral & Scheer (1999).

[18] There remains also the possibility that melodic effects might occur in the C environments but this will not be a focus here and is left open for future consideration.

distribution glottalling' (found, for example, in London English) which typically occurs in three out of the six environments and (6ii) illustrates 'narrow-distribution glottalling' (which is common in many other varieties of English, especially in Britain):

(6)

	A [__#]	B [__c]	Ci [v́__(v)]	Cii [(v)__v́]	D [c__]	E [#__]
	let	*catkin*	*pretty*	*pretend*	*after*	*time*
i	ʔ	ʔ	ʔ	t	t	t
ii	ʔ	ʔ	t	t	t	t

One conventional take on this is that, because lenition only occurs in environments A, B, and Ci (in 6i) or in the subset A and B (in 6ii), these are 'lenition-promoting environments'. However, things can be seen the other way around. One absolute characteristic of language is the fact that all linguistic systems change over time; in terms of phonology, this means that new processes are introduced. It is thus arguably surprising, once a process is introduced, that it does not occur across the board. Lenition processes are indeed common. They are simply some of the ways in which segments can change spontaneously in historical phonology. If such processes are so common as to be also almost expected, then the interesting type of phonological environment becomes those which inhibit these processes.

This approach inverts the view that lenition promotion is key and focuses on a prospectively more fruitful perspective – the consideration of which prosodic and melodic factors prevent the introduction of a process.[19] Once a full description of these environments is given, then the notion of 'promoting environment' does not need to be defined.

3.3.1.2 'Lenition inhibition'
From the glottalling data in (6), it seems that environments D, E, and Cii are potentially inhibiting environments (this seems to be the case for Ci, too, although less strongly so). The difference between (6i) and (6ii) shows that the set of environments involved in the inhibition of lenitions are not always the same, but, as will become apparent, a set of crosslinguistic generalizations can certainly be made about the nature of possible inhibiting environments and about their prosodic and melodic characterization.

Present-Day Spanish exemplifies certain synchronic lenitions which illustrate interesting inhibition patterns, with some complications in terms of the prosodic environments and a clear inhibitory influence of certain melodic factors. A description of the lenitions is given in (7), with data taken from Penny (1991). This also

[19] As a reviewer rightly points out, it would be wrong to claim that the 'conventional' view of the interaction between lenition processes and their phonological environment focuses exclusively on process promotion. Especially in the discussion of prosodic factors, however, it is common to talk in terms of 'lenition environments' (or 'weakening environments'), rather than 'nonlenition environments' (for example in Escure, 1977 and Bauer, 1988) or to describe 'preferred weakening environments' (as in Dressler, 1985 and Dosuna, 1996).

illustrates an earlier, diachronic lenition of the 'voicing' type: Spanish synchronic /b, d, g/ originally derive from Romance /p, t, k/.[20]

(7) p → b → β   Latin *cupa*   vs   Spanish *cuba*   [kuβa]   'cask'
    t → d → ð   Latin *catena*   vs   Spanish *cadena*   [kaðena]   'chain'
    k → g → ɣ   Latin *securus*   vs   Spanish *seguro*   [seɣuro]   'safe'

All of the lenitions in (7) fit well with the lenition trajectory given in (4). For the discussion of process inhibition, I focus on the synchronic spirantizations: in (8) the patterns of inhibition are examined one by one, in terms of the environments from (5):

(8)
   A [__#]   lenition occurs (although most final consonants had been lost in
                  Spanish before the introduction of this process)
   B [__c]   lenition occurs
   C [v__v]   lenition occurs; the placement of stress is not relevant, as shown below
    Ci   [v́__(v)] – [sáβe] 'knows'
    Cii   [(v)__v́] – [saβér] 'to know' (data from Harris, 1997)
   D [c__]   lenition occurs, except not after a nasal, and /d/ does not lenite after /l/
   E [#__]   lenition can occur: in utterance-initial position, no lenition occurs, but
              utterance-medially, the same generalizations hold concerning preceding
              melody as in D; compare *en **B**arcelona* [embarθelona] 'in Barcelona'
              and *a **B**arcelona* [aβarθelona] 'to Barcelona'

These data illustrate a somewhat different pattern of inhibition from that in (6). They also show that there is potential for a distinction between different 'E' environments: as well as the isolated, utterance-initial environment where lenition does not occur, there can be a difference between the inhibitory effects of the environments [c #__] and [v #__]. Lenition occurs even when a consonant is word-initial if it is preceded in an utterance by a word-final vowel; it does not occur if preceded by a word-final consonant. This indicates that word-initial position is potentially not the position which is most likely to inhibit lenition. The situation in environment D [c__] gives further pointers in this direction. Environment D illustrates the fact that the melodic environment of a segment can be an important factor in the inhibition of lenition. This point will become a recurrent refrain in this study.

    Another case of lenition will serve to show that the patterns of melodic lenition inhibition can be quite complex. The lenitions illustrated in (9), with diachronic data (from Schmidt, 1984), are a set of changes which are often referred to as the 'High German Consonant Shift'. The evidence in (9) compares forms from Old Saxon

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[20] Although the segmental symbols used for the final stage of the lenitions in (7) are those for fricatives, in keeping with many descriptions of these phenomena, the true realizations are in fact typically approximants (as demonstrated in Lavoie, 2001, for example). While this is potentially more generally true and is thus of significance for an accurate understanding of lenition trajectories, it does not affect the fact that these are 'opening' lenition processes according to the trajectory in (4), nor is it relevant to the pattern of inhibition, so it can be regarded here as a caveat. Much greater weight is placed on this observation in Honeybone (in preparation).

('OS'), a Germanic language which did not undergo the change in question (and thus maintained the previous Proto-Germanic forms), with Southern German forms of Old High German ('OHG'), where the lenitions occurred to the greatest extent:

(9)

p → pf *or* f	OS *pund*	OHG *pfund*	'pound'	OS *opan*	OHG *offan*	'open'
t → ts *or* s	OS *settian*	OHG *setzan*	'to sit'	OS *etan*	OHG *eʒʒan*	'eat'
k → kx *or* x	OS *werk*	OHG *wercch*	'work'	OS *ik*	OHG *ih*	'I'

As can be seen from (9), the result of the lenitions was either an affricate or a fricative.[21] In terms of the lenition trajectory in (4), this means that the lenition went either one or two stages down a trajectory, and we might expect this to correlate with the observations made above regarding process inhibition. An examination of the patterns of where the process resulted in affricates and where it resulted in fricatives does indeed show how prosodic and melodic factors determined 'how much' lenition occurred. The segments /p, t, k/ became affricates in environment E [#__] and in environment D [c__] where the consonant was /l, m, n, ŋ, r/ or the first half of a geminate (although the precise details of this differ from dialect to dialect). Lenition to fricatives resulted in environments A [__#] and C [v__v] (that is, both Ci and Cii).

Lenition was also entirely inhibited in certain environments: for /p, t, k/ no change occurred in the environment [s__] and for /t/ the process was also inhibited in the environments [p__] and [k__] and [__r]. The pattern of melodic inhibition is quite complex here but some of these details will recur in the description of the lenitions of Liverpool English.

The processes discussed above, both contemporary and fossilized, show that any discussion of the inhibiting environments for lenition cannot hope to apply in the same way to all lenitions. While we can identify both prosodic and melodic inhibiting environments for specific processes and can generalize over them (as we will see in section 6), they are not the same for all lenitions. Occasionally lenitions occur across the board, without any inhibition and affecting all occurrences of a segment (as attested historically, for example, in Umbrian-Oscan and Greek), but it is typically the case that some pattern of inhibition will be exhibited and there are clear implicational relationships between different environments. The examples discussed here indicate that certain prosodic environments can inhibit the introduction of a process; this seems to be the case most clearly in D [c__] and E [#__]; the true picture for these environments, however, is complicated by the melodic content

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[21] Traditional descriptions maintain that the new fricatives were geminates, but this is by no means necessarily the case. While geminates are attested at later stages of the language, it is neither the simplest reconstruction nor philogically necessary to assume that the initial product of the lenition was a geminate. It is also quite certain that the fricative output of the lenition of /t/ was not, in fact, a canonical grooved alveolar fricative. It was a coronal voiceless fricative, however, and it has since merged with /s/. There is neither space nor real need to go into the details of these points here, but see Honeybone (in preparation) for discussion.

of surrounding segments, especially in the case of D. This, rather than prosodic inhibitory effects, will be the focus of the latter section of this paper.

Following the above consideration of the generalities of lenition and the preceding discussion of methodological preliminaries (in section 2), the scene is now set for the coming examination of the situation in Liverpool English.

4   Lenition in Liverpool English

Previous descriptions of lenition in Liverpool English have often been quite superficial. General overviews of English accents, such as Wells (1982) and Hughes & Trudgill (1996), only mention (some of) the possible results of the lenitions and make hardly any mention of possible inhibition effects, which is understandable given their generality.

Other work which investigates the accent in more detail, such as de Lyon (1981) and Newbrook (1986, 1999), also lacks any real phonological detail in this regard. Even Knowles (1974, 1978), the standard reference works for the accent, do not really attempt to deal with the detail of the lenitions, although there is more discussion in this work than elsewhere.[22] No previous work has investigated the patterns of inhibition shown by the lenitions in real depth.

The only sophisticated discussions of the phenomena are in Harris (1990, 1994) and Sangster (1999, to appear). These deal with consciously restricted aspects of the lenitions from very different perspectives (Government Phonology and Instrumental Phonetics, respectively), and include some detail not discussed elsewhere, but nonetheless still leave much undiscussed. Harris discusses some of the inhibitory effects on /t/, and Sangster investigates environments A [__#] and E [#__] for /t/ and /d/. Some of the detail of these accounts is discussed in section 5.

The data presented in section 5 are the findings of an investigation of a small corpus of Liverpool English, in line with the comments and methodological assumptions set out in section 2. This is intended as the first step in the systematic investigation of a proper corpus, but it is at least one stage advanced from ad hoc noncorpus-based observation. The analysis is entirely auditory (planned as a preliminary to later acoustic analysis) and impressionistic (planned as a preliminary to later quantificational analysis).

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[22] In fact, Knowles rejects the classification of the patterns of plosive realization as a case of lenition, but the reasoning behind this move does not seem clear to me. He writes that 'the "cardinal" categories of stop, fricative and affricate are inappropriate for the description of Scouse consonants' (1974: 107). This does not seem a necessary conclusion, however. Knowles' explanation for the typical kinds of plosive realization in the variety is that '[a]rticulation is generally lax in Scouse' (1974: 107) so that contact is not always achieved in stops. This concept remains rather unclear, however, and is not compatible with the fact that the characteristic rhotic realization in the variety is a 'contact rhotic' – the tap [ɾ]. Knowles goes on to very briefly discuss some cases where 'closure is normal', that is, phonological environments where realization as fricative or affricate is inhibited. As we will see, the situation in Liverpool English is very similar to the phonological processes discussed in section 3. Knowles' description of the situation seems entirely consistent with the view that it is an example of lenition and it is unnecessary to claim that it is anything other than a phonological process.

In sections 2.1 and 2.2, I argued that it is important to investigate contemporary accents with a phonological awareness. The discussion in section 5 seeks to bring such awareness to the study of the lenitions. I also argued that, at least at the initial stages of investigation, social representativeness can be overlooked when choosing speakers to be investigated. The remainder of this section explains how this was put into practice in the current study.

The corpus was recorded during the summer of 2000. It comprises many hours of a late-night radio phone-in show which plays on a Liverpool radio station. The sample involved males and females, of a range of ages. All were chosen because, subjectively, they fitted the category of 'having strong Liverpool accents' as discussed in section 2.1.2. The sample was thus a 'judgement sample' where speakers were chosen partly through self-selection and chance (in that they decided to phone up the programme) and partly because they seemed to fit the category of 'new NORMs' in line with the justification of the investigation of such speakers in section 2.1.2.

There are both problems and advantages of this method of data collection. Problems include ethical concerns and considerations due to the effect of the medium and the quality of the recordings. Milroy (1987) discusses certain ethical considerations regarding the use of 'candid' or 'surreptitious' recordings, but it should be noted that the recordings used here are not, strictly speaking, surreptitious, as the material is all in the public domain and all speakers have consented to being broadcast. Labov (1972) recommends radio and TV broadcasts as one possible source of data and there is a tradition of using broadcast material as the basis for corpora (see, for example, Knowles, Wichmann & Alderson, 1996).

The fact that speakers are being broadcast to an audience might be thought likely to affect their speech. However, certain distinct advantages of the particular radio programme used mitigate this possible effect greatly: it is transmitted late at night, which contributes to the generally very informal atmosphere (swearing and jokes are common on the show). The host has an accent which has clearly identifiable 'Liverpool' features. The programme is only transmitted in Merseyside and it is clearly intended to be a programme 'by Liverpudlians for Liverpudlians'. All of these factors will likely conspire to make speakers feel at ease. Also, due to the nature of the topics discussed, tempers often rise, which can lead to speakers losing conscious control over their speech so that the 'observer's paradox' (see Labov, 1972) is partly avoided. This particular radio programme is thus well suited to the purpose.

Because the data were being filtered twice (through the telephone network and the radio waves) the quality of speech recorded is not perfect, so the recordings would not be suitable for instrumental investigation. However, the quality of most of the speakers' contributions is surprisingly good and is fine for auditory analysis.

5   New detail in the description of Liverpool lenition

In the light of the open questions connected with lenition and its inhibition discussed in section 3 and because previously published discussions of the patterns of lenition

in Liverpool English leave much unmentioned, it is clear that more detailed investigation such as the following is in order. Analysis of the corpus described in section 4 shows that the segments which correspond to underlying stops are indeed frequently realized as affricates and fricatives. Other realizations are also attested, some of which are briefly discussed below.

Liverpool English features the conventional six underlying stops: /p, b, t, d, k, g/.[23] It seems that all of these can be subject to lenition in certain prosodic and melodic environments. Impressionistically, however, lenition seems to affect certain stops more frequently than others. Lenition of /p, b, g/ does not seem so frequent as the lenition of other stops. It is likely that this is due to the fact that it actually occurs less frequently, although it could possibly be due to the lesser salience of [ɸ, β, ɣ], for example, than of [s, z, x]. It is best here to reserve judgement and the opportunity for further research. In order to keep discussion here within reasonable limits, the lenition of /p, b, g/ will not be discussed further, although a few attestations of the lenition of /p/ from the corpus are given in (10) as an illustration of the type of lenition which can occur:

> (10) in environment A [__#]:   . . . s*hop* . . .   [ɸ]
>   in environment C [v__v]: . . . *Liverpool* . . .   [ɸ]

The lenition of /d/ will also not be further discussed, although the segment is often quite noticeably affricated or spirantized in normal speech. In Sangster's (1999, to appear) investigation of aspects of the lenition of /d/, full fricatives are frequently recorded in environment A [__#], and affrication to [dz] is recorded in E [#__].

Many potentially interesting points are ignored here so that attention can be directed towards /t/ and /k/, informed by the methodological and theoretical considerations discussed in sections 2 and 3. Their lenition is extremely characteristic of Liverpool English and they display an intricate pattern of lenition inhibition, as we will see.

As the few pieces of data in (1) and (10) and previous discussion illustrate, the lenition in Liverpool English is 'opening' or 'spirantizing' lenition, that is, no change in voicing occurs. This means that the possible lenition trajectories which would be worthy of consideration for /t/ and /k/ are as in (11). The key questions for consideration here are: how far does the lenition of these segments proceed along these trajectories, and what are the relevant phonological environments?

> (11)
> Stages of lenition: 0 ⟶ 1 ⟶ 2 ⟶ 3 ⟶ 4
>
>   stop   affricate   fricative   h   elision
>
>   t ⟶ t̪θ̠/ts ⟶ θ̠/s ⟶ h ⟶ Ø
>
>   k ⟶ kx ⟶ x ⟶ h ⟶ Ø

---

[23] It is possible that certain speakers of the variety have another two underlying stops (the dentals /t̪/ and /d̪/) in common with certain speakers of Irish English.

Some of the transcriptions in (11) need a little explanation. The symbols [t͟θ] and [θ̠] represent an alveolar slit affricate and fricative respectively, similar to that found in Irish English (see Hickey, 1984, 1999 and Pandeli, Eska, Ball & Rahilly, 1997). This is articulatorily and acoustically distinct from the grooved [ts] and [s], but is equally distinct from the plosive [t] in terms of acoustic effect and articulation.[24] The fact that /t/ has a wider range of possible routes in terms of lenition than, say, /k/ is doubtless connected with the fact that there is generally a wider range of segments at the coronal place of articulation than there is at others. The segments [t͟θ] and [θ̠] are included in (11) as they will feature below, and it is worth noting that the segment /t/ can also be lenited to [θ] (as in part of Grimm's Law, for example). The variability here can partly be understood with the recognition that the exact realization of all segments is subject to the conventional articulatory habits of a community (for example, the exact degree of aspiration in segments such as [pʰ] can vary, as can the exact place of the realization of segments transcribed as [x]).

The trajectories in (11) make explicit the 'stages' of lenition and give them a number for ease of reference. A crucial part of the following discussion of lenition in Liverpool English depends on the correct way of understanding these trajectories as they relate to a variable process. The trajectories should be interpreted for such processes like this: the possibility that a 'high' stage of lenition can occur in any environment implies that 'low' stages of lenition can also occur there (including no lenition at all). For example, if lenition can occur up to stage 2 in any given environment, then stage 0 and 1 realizations will also be able to occur there. The interesting cases in terms of lenition inhibition would be, for example, those where only stage 1 lenition can typically occur (along with the nonlenition stage 0, of course) but not stage 2, or if no lenition at all can occur in certain environments.

The next two subsections consider the realization of /t/ (in 5.1) and of /k/ (in 5.2) in terms of the connection between the stages of lenition from (11) and the set of phonological environments which were set out in (5). The exemplification is taken from the corpus and the realizations are meant as representative illustrations.

5.1 New detail in the description of the lenition of /t/ in Liverpool English

The phonotactic freedom in a language like English means that the segments which are typically described as being susceptible to lenition in Liverpool English occur in a wide range of environments, both in terms of prosodic and melodic factors; this is especially the case for /t/. The environments in (5) do not cover all of these

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[24] The fricative [θ̠] is a 'controlled articulation' (Hickey, 1984: 234), but there is less contact with the roof of the mouth than for canonical [s], as the segment has a broad central channel. Pandeli et al. (1997) note that there is no unitary symbol for this type of segment in the standard IPA and, after discussing a range of possible transcriptions, suggest [θ̠], which is composed of the base symbol [θ], clearly indicating fricativity and a flat cross-sectional tongue shape, and the diacritic [̠] which indicates a precisely alveolar place of articulation and is taken from the 'extended IPA', which is used to transcribe disordered speech.

possibilities, but rather focus on a set of well-defined environments which, as we saw in section 3, have shown themselves to be interesting in the investigation of both synchronic and diachronic lenitions in other languages.

Both slit and grooved affricates and fricatives occur in the corpus in similar environments, although the slit segments seem to be the characteristic, most common forms; the difference seems to be at least in part a result of interspeaker variability; most speakers typically produce [tθ̱] and [θ̱] while a few speakers typically produce [ts] and [s].

In environment A [__#], the typical lenition involves stage 2 fricatives, as shown in some examples from the corpus given in (12):

(12) *Pete*   [θ̱]
     port   [θ̱]
     shot   [s]
     alright   [θ̱]

The examples in (13) illustrate the variation which is possible in the realization of the underlying stops; they show that stage 1 lenition can also occur in this environment, giving affricates (stage 0 stops also occur, of course):

(13) *great*   [tθ̱]
     doubt   [tθ̱]
     about   [ts]
     aristocrat   [ts]

'Implicational' variation of this type (for example, the fact that stage 2 lenition can occur in a particular environment implies that stage 1 lenition can also occur there) is found *mutatis mutandis* in practically all the environments discussed below. From now on, however, only the 'most' lenition possible in any environment is exemplified, although the background of variation should always be borne in mind.

Environment B [__c] (the 'coda') is difficult to investigate, as few words in English allow /t/ to occur here; there may well be good phonological reasons for this (see, for example, Harris, 1994). Only some rare words such as *catkin* exist; none occurred in the corpus.

In environment Ci [v́__(v)], a common lenition involves two stages, as shown in the examples given in (14); stage 0 stops and stage 1 affricates also occur:

(14) *city*   [θ̱]
     water   [s]
     better   [θ̱]

In environment Cii [(v)__v́], a lenition to stage 1 affricates seems to be possible, as shown in (15), although stage 0 stops also occur. Few examples were noted in the corpus. It is possible that stage 2 fricatives may occasionally occur.

(15) *attack*   [ts]

In environment D [c__], the situation is complex: in the environment [s__], lenition seems typically to be entirely inhibited:

(16) *station*   [t]
    street   [t]
    aristocrat [t]
    constant   [t]

In the environments [l__] and [n__], lenition to stage 1 affricates is possible, although stage 0 stops also occur:

(17) *adult*   [ts]
    twenty   [ts]
    sentiment   [ts], [ts]
    moment   [tθ̠]

In the environments [f__] and [k__], lenition seems typically to be inhibited, although it may be that stage 1 affricates can occur:

(18) *fifteen*   [t]
    respect   [t]
    practice   [ts]

In environment E [#__], the typical lenition seems to be to stage 1 affricates, as shown in some examples from the corpus in (19); stage 0 stops are also common, however, and stage 2 fricatives occasionally occur:

(19) *taken*   [tθ̠]
    time   [ts]
    ta   [ts]   'thank you'
    tomorrow   [θ̠]

5.1.1   t → h

The patterns of lenition and lenition inhibition described in the previous section seem to be the 'normal' lenition found in Liverpool English. However, in certain highly restricted cases the segment /t/ can undergo three stages of lenition as far as [h]. This is restricted to /t/ among the stops, and the environment in which it occurs is very tightly defined, and is by no means dictated by purely phonological factors. Lenition to [h] occurs in environment A [__#], although it seems to be further restricted to utterance-final, or pre-pausal position. It also typically affects the final /t/ in only a small group of words, such as those given in (20):

(20) *but*   [h]
    that   [h]
    it   [h]
    what   [h]

The precise inventory of these words is not yet clear, but certain members of the group seem frequently to function as a class in descriptions of English (see, for example Carr, 1991, Docherty et al., 1997 and the references therein). They are monosyllabic function words, with short vowels.[25] A full discussion of this situation

---

[25] Certain other words ending in /t/ also occasionally undergo lenition up to stage 3, for example *ticket*. Further research is needed to ascertain precisely which words can be affected in this way.

cannot be given here, but it seems linked to the other patterns of lenition discussed in this section because the final segments in these words are also realized with stage 1 and stage 2 lenition. Occasionally stage 4 lenition (i.e. elision) also occurs.

5.1.2   Other types of /t/ in Liverpool English

At times, the segment /t/ can be realized as a rhotic: [ɾ] or [ɹ]. This is not particular to Liverpool English, however, as it is common in many varieties of English from northern England. As Carr (1991) and Docherty et al. (1997) discuss, this rhotacism typically affects final segments in only a small set of words, not unlike those discussed in section 5.1.1. The only environment in which this occurs is a kind of c_i, typically being [v́__ # v], so it is very widely inhibited, like the lenition to [h] discussed in the last section.

Because this rhotacism is not particular to Liverpool English, it will not be a focus of discussion here, but it is worth noting that the existence of such rhotic realizations in the variety means that the final segments in certain words (for example, *but* and *what*) have a very wide range of realizational possibilities: [t], [tθ̱] or [ts], [θ̱] or [s], [h] and [ɾ] or [ɹ]. The latter two types of realization (as a glottal fricative and as a rhotic) are only possible in mutually exclusive environments (utterance-finally and utterance-medially), while the others do not seem to be so inhibited. A final point to note here is that the glottalling of /t/ to [ʔ] (as discussed in section 3.3.1.1) also occurs in the corpus, at least in the speech of certain speakers. This adds another realizational possibility for these speakers, and its introduction into the variety is doubtless connected with the generally reported spread of glottalling among British accents of English (see, for example, Foulkes & Docherty, 1999a).

5.2   New detail in the description of the lenition of /k/ in Liverpool English

The patterns found in connection with the lenition of /k/ are similar to those exhibited by /t/, but there are certain clear differences. For example, there is no common stage 3 or 4 lenition to [h] or Ø; such forms may occur, in line with Docherty et al.'s (1997) observations, but are not frequent. In common with other British varieties which exhibit a 't → r' process and glottalling, as mentioned in section 5.1.2, this does not affect /k/.

Lenition of /k/ to stage 1 affricates and stage 2 fricatives is found in similar, but not quite the same, environments as it is for /t/. Additionally, for the fricative realizations of /k/, an optional process of place assimilation can occur, which is intrinsically fed by spirantization. The place of articulation of a directly preceding vowel can spread to determine the place of the following fricative, meaning that fricatives of the types [χ, x, ç] all occur as a result of stage 2 lenition in such environments as A [__#].[26] For the sake of simplicity and because this is a separate process from lenition, the details of this are suppressed in the transcriptions in this

---

[26] This process of dorsal fricative place assimilation is similar to, but not quite the same as, that which is found in many varieties of German (see, for example, Kohler, 1977 and Hall, 1989). Front high vowels

section, and a true fricative, be it [ç], [x] or [χ] is simply represented as [x] (although it may well be, in fact, that the canonical fricative stage of the lenition of /k/ is actually [χ]).

In environment A [__#], the typical lenition involves stage 2 fricatives, as shown in some examples from the corpus in (21). As expected, given our implicational understanding of lenition, affricate realizations are also attested, as are stops:

(21) *week*   [x]
     homophobic [x]
     book   [x]
     Mike   [x]

In environment B [__c], the typical lenition involves stage 2 fricatives (this seems very common), as shown in some examples from the corpus given in (22):

(22) *basicly*   [x]   'basically'
     actor   [x]
     Brookside   [x]
     respect   [x]

In environment Ci [v́__(v)], lenition can involve two stages, as shown in (23). Stage 0 stops and stage 1 affricates also occur:

(23) *market*   [x]
     binoculars [x]
     crackers   [x]   'mad'
     trackies   [x]   'tracksuit'

In environment Cii [(v)__ v́], a lenition to stage 1 affricates is possible, although stage 2 fricatives seem common, and stage 0 stops also occur:

(24) *okay*   [x]
     education   [x]
     okay   [kx]

In environment D [c__], the situation is again complex. In the environment [s__], lenition seems typically to be entirely inhibited:

(25) *scally*   [k]   a derogatory term
     ask   [k]
     scared   [k]

In the environments [l__], lenition to stage 2 fricatives is possible, although affricates and stops also occur:

(26) *welcome*   [x]
     balcony   [x]
     welcome   [kx]

In the environments [ŋ__], lenition to stage 1 affricates seems possible, although stage 0 stops are common:

(those which include the element |I|) can cause assimilation to [ç], but it seems likely that the length of the preceding vowel affects the likelihood of assimilation in Liverpool English.

(27) *thinking*   [k]
     drinking   [k]
     inconvenience [k]

In environment E [#__], the typical lenition seems to be to stage 1 affricates, as shown in (28). Stage 0 stops are also common, however, and stage 2 fricatives can occasionally occur:

(28) *come*   [kx]
     customers [kx]
     kids   [kx]
     called   [x]

6   Lenition inhibition in Liverpool English

The data presented in section 5 illustrate the variability of the lenition of /t/ and /k/, but the implicational lenition trajectories given in (11) allow us to begin to understand the patterning of the lenitions' inhibition. This section summarizes this patterning and uses the phonological notions developed in section 2.2 to move towards an explanation of the inhibition. The explanatory discussion will focus on inhibitory factors which are due to melody, rather than those of prosody, because the latter are generally better understood. I compare the phonological patterning found in Liverpool English with that discussed for analogous phonological occurrences in other languages in section 3; it is thus here that I seek to explore the connection between synchronic and diachronic data, and the explanatory potential of phonological theory.

The total possible lenition trajectories for the segments /t/ and /k/ in Liverpool English are given in (29). These simply illustrate the stages of lenition which can be observed at all, with no consideration of environment.

(29)
Stages of lenition:	0 $\longrightarrow$	1 $\longrightarrow$	2 $\longrightarrow$	3 $\longrightarrow$	4
	t $\longrightarrow$	t$\underline{\theta}$/ts $\longrightarrow$	$\underline{\theta}$/s $\longrightarrow$	h $\longrightarrow$	Ø
	k $\longrightarrow$	kx $\longrightarrow$	x		

Underlying /t/ can be realized as an affricate in most environments and as a coronal fricative in a subset of these environments. In a much smaller subset, which is subject to lexical conditioning, further lenition to the glottal fricative can occur, as can, occasionally, total lenition, i.e. elision. Underlying /k/ can be realized in most environments as a dorsal affricate and in a subset of these it can be further lenited to a dorsal fricative (although it is important to recall that [x] in (29) really stands for [χ, x, ç]).

The patterns of inhibition that the lenitions exhibit are quite complex, even among the consciously restricted number of phonotactic environments investigated in section 5. However, if we set aside the special case of when /t/ is realized as [h],

which was already discussed in section 5.1.1, some clear generalizations emerge from the data. One group of these is listed in (30) as a set of bullet points:

(30)
- As the data in (19) and (28) show, stage 1 lenition to affricates (alongside stops) is found for both /t/ and /k/ in environment E [#__], whereas other stages of lenition are typically inhibited here. Occasionally stage 2 fricatives occur, but these are typically in environments that are very weak in terms of sentence prosody (that is, they occur in an unstressed position in an utterance).
- For both /t/ and /k/, in environment Cii [(v)__v́], stage 1 affricates are common, although, again, fricatives can occasionally occur under the same circumstances as for E, as shown in (15) and (24).
- In environments A [__#] and Ci [v̇__(v)], stage 2 lenition is commonly found without any special conditioning for both /t/ and /k/, and for /k/ also in environment B [__c], as shown in (12), (14), (21), (22), and (23).

It seems that there are two sets of environments here: (i) E and Cii and (ii) A, B, and Ci. In group (ii), lenition to stage 2 fricatives is common, whereas in group (i), lenition to stage 1 affricates is common and lenition to fricatives rare. This clearly indicates that environments E and Cii have an inhibitory effect. In terms of the terminology adopted here, these are cases of prosodic inhibition.

It is in environment D [c__] that the inhibitory effects of melody become apparent. We need here to consider the melodic make-up of the preceding consonant. For both /t/ and /k/ certain melodic environments inhibit lenition, although the generalizations are not exactly the same for both segments. A summary of environments is given in (31):

(31)
- In [s__] there is generally no lenition at all for either segment, see (16) and (25).
- Only stage 1 lenition to affricates occurs (to the exclusion of stage 2 fricatives) for /t/ in the environment [n__], see (17), and for /k/ in the environment [ŋ__], see (27).
- For /t/, the environment [l__] typically only allows stage 1 lenition, as shown in (17), whereas [l__] allows both stage 1 and 2 lenition for /k/, as shown in (26).
- It also seems that [f__] and [k__] inhibit lenition for /t/, see (18).

While there are definite generalities in the descriptive statements above, explanation requires a deeper level of generalization, and a comparison with the patterns of inhibition shown by the lenitions discussed in section 3 will prove helpful here. The prosodic inhibition shown by the data from Liverpool English is consistent with that found in the other lenitions. The points in (30) show that environments E and Cii are inhibitory by themselves, as they are for the glottalling data in (6). Also, we saw that E only allowed stage 1 lenition in the Old High German data in (9) and can be inhibitory, in connection with other factors, in the Spanish data in (7) and (8). Environments A, B and Ci are less inhibitory in Liverpool English, as they are in glottalling, and this is also what was found in the Spanish and Old High German data. Environment D, where melodic factors come into play, was more complicated in both the Old High German and Spanish data. This is also analogous to the situation in Liverpool English, and we turn to the details of this directly.

Many of the theoretical proposals which have been made to account for the environments in which lenition frequently occurs have focused on prosodic factors. There is general agreement that initial environments can be inhibitory, particularly for word-initial, foot-initial or utterance-initial onsets. The generalization is often expressed in opposite terms (i.e. that noninitial environments are lenition promoting) but this does not affect the inventory of the environments in question. No proposal is defended here to account for these well-known inhibitory environments; rather, focus is directed towards the melodic inhibition of lenition because this is less well recognized and understood. Certain melodic configurations frequently have an inhibitory effect on lenitions, including those found in Liverpool English. Given that similar effects can be observed in a wide range of languages, this is likely to function as a window onto deep-rooted aspects of the nature of phonology; because of this, the remainder of the theoretical discussion in this section concentrates on these effects.
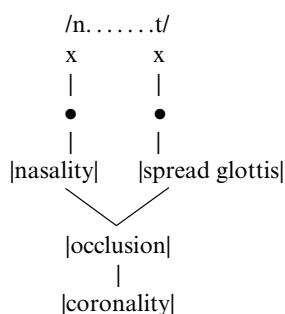
One clear generalization is that the sharing of place with a preceding consonant leads to the inhibition of lenition. This is clear from the Spanish data in (7) and (8), where the stops /b, d, g/ lenite, except after a homorganic nasal, although /d/ does not lenite after /l/, while the other stops do; it is notable here that /d/ and /l/ both feature the element |coronality|, whereas /b/ and /g/ do not. This is consistent with the situation in Old High German, where stops only lenited to affricates, not fricatives, following /m, n, ŋ/.[27] The data in (17), (26), and (27) show a similar situation in Liverpool English. Only stage 1 lenition occurs for /t/ in the environment [n__], and for /k/ in the environment [ŋ__], whereas the environment [l__] is inhibitory for /t/ but not for /k/, because stage 2 lenition occurs for /k/, but not for /t/.

The autosegmental-type, elemental representations for subsegmental structure that were proposed in section 2.2.2 provide a means to explain how the melody of a preceding segment can affect the likelihood of lenition. This type of representation envisages the spreading of elements to neighbouring segments so that one element can be linked to more than one segment. It is in this way that assimilations are modelled. It is also perfectly possible for segments to share elements, even where no obvious assimilation has occurred; indeed, it is a reasonable assumption that such sharing occurs lexically where it can. I propose that this sharing of subsegmental material gives a segment 'strength' by locking it into the word's phonological structure. If we assume that this positionally derived 'strength' becomes a property of the whole segment, it can be seen to account for the fact that lenition is prevented from affecting the segment in question. A representation for the sequence /nt/, which respects such assumptions and which stands for all such inhibitory environments, is given in (32).

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[27] In certain varieties of German (e.g. High Alemannic) the lenitions affected the stops in all initial and medial environments except in the sequence /ŋk/, which is further evidence for the melodic inhibitory effect of the environments described here (see Keller, 1978 and Honeybone, in preparation).
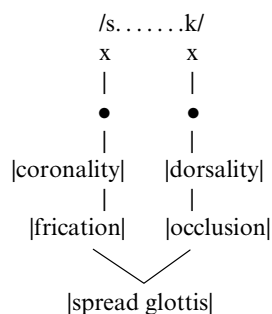
(32)
```
        /n......t/
        x       x
        |       |
        ●       ●
        |       |
    |nasality|  |spread glottis|

            |occlusion|
                |
            |coronality|
```

The lenition of /t/ in this environment is inhibited by the sharing of the place specification, and of the |occlusion| element. The same elements would be shared by the cluster /lt/ and similar configurations would occur in the other inhibitory sequences just discussed; for example, in /ŋk/, a |dorsality| element would be shared in the place of |coronality|. Structures such as this, with elemental sharing, have been described as 'partial geminates' (e.g. in Harris, 1997) although they involve two segments, following the definition of segment given in section 2.2.2.

The fact that full geminates often resist phonological processes which affect nongeminate segments is well known (it is often labelled 'geminate inalterability' after Hayes, 1986). The approach proposed here provides a mechanism to understand why the effect occurs and is so common in partial geminates, too. As Elmedlaoui (1993) explains, previous explanations of the inhibiting effect of geminacy (such as the 'Linking Constraint' of Hayes, 1986) derive from a condition on the processes involved, not from any property of the geminates or partial geminates themselves. In fact, such approaches predict that there will be some lenition processes which only affect geminates, just as there are others which only affect nongeminates because both types of processes are just as easily formalizable. No such cases of lenitions which only affect geminates or partial geminates have been reported, however. The approach which I adopt derives the inalterability of segments from a notion of positional strength which is gained by the sharing of subsegmental material, and which predicts that no processes will ever only affect geminates or partial geminates, to the exclusion of true singletons.

Once this possible avenue of explanation is opened up, other cases of melodic inhibition become comprehensible. The inhibitory effect of the [s__] environment in Liverpool English is also shown in the Old High German data. Iverson & Salmons (1995) propose independently that sequences such as /sp, st, sk/ share a |spread glottis| specification in order to account for the lack of aspiration in such clusters (because there is only one laryngeal specification, they propose, the laryngeal activity is finished by the release of the stop). If element sharing is understood to give a cluster strength, as proposed above, representations such as that in (33) can be seen to provide an explanation for the fact that this is an inhibitory environment.

(33)

```
              /s.......k/
              x        x
              |        |
              •        •
              |        |
        |coronality|  |dorsality|
              |        |
        |frication|   |occlusion|
                  \   /
                   \ /
              |spread glottis|
```

The inhibitory effects addressed here are melodic in the sense that, for a lenition to be inhibited, the segment which would be targeted by the process can only be 'protected' if it is in the right melodic environment. It is to be expected that this kind of effect will interact with other factors, such as the prosodic environment, and this seems to be the case in the lenition data in section 5. The environments discussed there show a range of inhibitory effects. The least inhibitory environments are prosodically weak and have no melodic support; these are environments A, B, and Ci, where lenition up to stage 2 is common. Intermediate are those environments which are prosodically strong but have no melodic support: E and Cii, where lenition up to stage 1 is common, but stage 2 lenition can occur. The most inhibitory environments are those discussed in connection with melodic inhibition in environment D; these typically have prosodic support, too, because the segments occur initially (that is, in an onset). In these environments, no lenition at all or only lenition to stage 1 affricates can occur.

This section has dealt with certain aspects of lenition inhibition which bring together the classic synchronic and diachronic lenition data discussed in section 3 and the novel data from Liverpool English. The approach which has been adopted to account for some of the patterns of inhibition is empirical in that it predicts that segments which do not receive melodic support through the sharing of subsegmental material should not be found to be more resistant to lenition than those which do, in any given prosodic environment. We should not be able to find copious lenitions where the [s__] environment is, say, the least inhibitory, nor should we find cases where the plosives in [nt] and [ŋk] clusters are more lenitable than those in [lk] or [rp], for example. Not all of the cases of inhibition have been covered here, and it is highly likely that other effects conspire with those which have been addressed in this section to influence the inhibition of lenition processes. However, it is only once attention is drawn them by the type of argumentation featured here that they become investigable. The focus of this section on melodic inhibition is intended as a step in that direction.

7 Conclusion

The goals of this article were to integrate aspects of phonological theory with data from a nonreference accent of English, to integrate this further with data from historical phonology and to contribute to the understanding of the nonreference accent itself. A first step towards these goals has been made by the description of lenition (and its inhibition) in general, and in Liverpool English in particular.

The description of the phenomena in section 5 and the move towards explanation in section 6 show that data from nonreference accents are compatible with theoretical phonology, despite the fact that investigation may be complicated by the fact that these processes are variable. Indeed, if synchronic and diachronic phonological constructs are correct, they must be testable using such varieties.

A key result from this investigation is the recognition of the melodic inhibition of lenition. The results here are naturally in the form of empirical hypotheses which, if their validity is to be established, must be tested against other data and also against further data from the variety investigated here. If the formulation of generalizations in this article helps the description of the variety in question only in that they are later disconfirmed by instrumental and systematic analysis, then they will have served their purpose in contributing to the description of Liverpool English.

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