Turn-final plosives and turn-taking in Liverpool English: an alternative to lenition

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Abstract

This study examines the use of turn-final variation in the plosives of Liverpool English in an interactional context. Naturally occurring talk is analysed for phonetic cues that participants use and orient to in conversation. From an analysis of conversational data, it transpires that the variability at this place plays a role in turn-taking. A Firthian-inspired phonological model of turn-final variation is proposed, which accounts for both long and short-domain exponents in a declarative manner. The model provides predictions about other data sets and participant behaviour. The analysis of the variation from an interactional perspective and without reference to lenition sheds new light on the phonology of Liverpool English.

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Thanks, guys (or should I say...ta la).

Dedication

To Dennis – who moved to England to be with me while I did this.

Danke schön.

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Chapter 1

Introduction

The variation in the utterance- or domain-final plosives of Liverpool English has been a topic of interest in recent years. There has been a certain amount of work carried out into the exact nature of the variation, the social factors which constrain it, and attempts have been made to model the variation based on its belonging to a set of processes identified as lenitions. Work on the phonetic and sociolinguistic aspects has been largely successful, but a predictive model of the lenition processes has not yet been developed.

This dissertation adopts a different approach to other studies which have considered the phonology of the variation in Liverpool English. There is a noticeable gap in the research into the phonology of Liverpool English in terms of interaction. By considering the variation as non-process based and by proposing categories that participants in conversation are seen to orient to, a phonological model of the variation can be developed. The model deals with how speakers produce and use variation; not just on the plosive, but over the whole word, and indeed, the turn.

The structure of the dissertation is as follows: chapter 2 presents an overview of work done on the subject, chapter 3 introduces the methods used to collect data, chapter 4 analyses the variation, and chapter 5 suggests how it could be modelled.

Chapter 2

Literature Review

> 'I'm in the people business like yourself.'
> Lest I am a doubting Thomas, he grabs my hand
> and shoves a finger into each dent in his skull.
> 'Pickaxe. And feel tha' ... and tha' ... and tha'.'
> From *Greek Tragedy* by Roger McGough

> "Scousers have always dropped the 't' at the end of 'what'...".
> Kevin Watson, 30.07.07, in the Liverpool Echo, p.12

The variation in domain-final plosives in Liverpool English is perhaps one of the most salient features of the accent (Honeybone 2001b:192). Indeed, there is variation in all plosives, in all environments, to a level which is unique amongst English accents (Honeybone 2005:181).

Some examples of utterance-final variation in alveolar plosives (from Honeybone (2001a:238-239)) are shown in example (1).

(1)	Pe**t**e	[θ̠]
	Sho**t**	[s]
	Grea**t**	[tθ̠]
	Abou**t**	[ts]
	Respec**t**	[t]
	Wha**t**	[h]

The phenomenon is classed as a lenition process, and has been found to be prosodically, segmentally and socially constrained in Liverpool English. Research has been carried out into all three of these areas, with considerable success for social factors. For segmental and prosodic constraints, however, no suitable model has yet been found. There is also a lack of research into possible interactional factors which may constrain variation. An investigation of the interactional uses of variation and a possible model for them is the focus of this research.

The following sections provide a background to the topics on which this dissertation is based. Following a brief introduction to the variety of English spoken in Liverpool, some of the problems with defining lenition in general are summarised before moving on to a discussion of work on plosive lenition. The conclusion from these two sections is that lenition is perhaps neither a suitable concept to use, nor does it manage to explain or predict segmental and/or prosodic constraints. Finally, an alternative approach to the variation is proposed and the research questions for the analysis are stated.

2.1 Liverpool English

This section places the English spoken in Liverpool in its historical and geographical context. Liverpool is a city in the north-west of England with a population of 450,000[1]. Despite being less than 40 miles from both Preston and Manchester, there are clear phonological differences separating Liverpool from the varieties spoken only a short distance away (Watson 2006a:13). This is not to say that Liverpool English does not share any features of the other northern Englishes; some of the variables of the Liverpool accent are common to all north-western varieties (Wells 1982:371, Watson 2006a:14).

Liverpool's proximity to Ireland has probably been the most important factor in the development of its accent. Indeed, Knowles (1973:14) dubs the accent of Liverpool a "transplanted Anglo-Irish", and refers to it as a "Lancashire dialect with an Irish accent" (1977:129). He goes on to place the divergence of Scouse from neighbouring varieties between 1830 and 1889, a period which encompasses the mass immigration from Ireland (1973:18). Wells (1982:371) also mentions the influx of Welsh immigrants to the city as influencing the accent.

The most salient feature of the accent that developed at this time is what is commonly

[1] www.statistics.gov.uk

referred to as plosive lenition. The next sections introduce lenition and the problems with using it as a label before examining the phenomenon in Liverpool English.

2.2 Lenition

"Lenition" is a frequently used term; however, its familiarity masks the problems associated with lenition both as a description and as an explanation. This section summarises the most important points on lenition for this dissertation.

Lenition has been attested in various languages and contexts. Historically, it has been observed in the High German Consonant Shift, Celtic languages (Martinet 1952), and synchronically in Spanish (e.g. Pountain 2001:278) and Liverpool English (e.g. Honeybone 2001a) to name but a few. It is presented as a process, which has been referred to as weakening (Hickey 1996:182, Sangster 2001:402), a reduction of effort (Knowles 1973) or of strength (Watson 2002:196). None of these definitions are without problems, and Bauer (1988:382) argues that in order for lenition to have any meaning at all, there must be a phonetic feature that correlates with it. However, Watson (2007:101) concludes from his work on lenition that a single acoustic correlate does not exist, and that there is no one process which can be referred to as lenition, a stance echoed by Honeybone (2002:233). An attempt to define lenition based not on *what* it is, but *where* it happens is similarly unsuccessful (Watson 2007).

The conclusion that can be drawn from this is that the existence of lenition, at least as a unified process, cannot be justified. It has no phonetic correlates, and cannot therefore be described in terms of what it is. Neither can it be accounted for in terms of where it occurs. Following Bauer's (1988:382) line of thought and Watson's (2007:94) reasoning that lenition should be describable in terms of *what* or *where*, it seems difficult to justify using lenition as a term or concept.

Where does this conclusion leave the work on plosive "lenition" in Liverpool English? If the variability in plosives cannot be referred to as lenition, then what is it? In section 2.5, the method of analysis for this dissertation will be presented, a non-derivative, non-process based phonology. Before discussing methodological concerns, however, the following sections introduce some of the work done on final plosive variation in Liverpool English.

2.3 Work on plosive variation in Liverpool English

A certain amount of interest has been shown in the variation in plosive realisation Liverpool English, most of it in recent years. The appeal of the topic stems no doubt from the wide range of phonetic variation in all plosives and in all environments. The most attention has been paid to word- or utterance-final plosives, possibly because of the wider range of final variability. The following sections summarise and evaluate some of the main studies on plosive variability.

2.3.1 Knowles 1973

Knowles' PhD thesis on Liverpool is the first work devoted to Liverpool English. It covers the birth of the variety and gives a comprehensive overview of the features of the accent. Because the focus of the thesis is not on any one feature of Liverpool English, Knowles does not spend much time describing the plosives. His account of the variability in plosive realisation is that Scouse articulation is lax, resulting in insufficient pressure to maintain a stop closure (1973:107). He claims that the articulations for lenited plosives in Liverpool English are not timed in the same way as canonical plosives (1973:252), allowing air to escape before the release, or closure not being attained at all. He also notes some interesting features of glottal action in Scouse, including an effect which he terms “the trailing off of voice and an increase in breath flow” at the end of utterances (1973:249). His other remarks on voice include the devoicing of vowels and nasals (1973:250).

Although Knowles' work is older and does not contain particular detail on the plosives, his remarks on voice are particularly relevant to the analysis in chapter 4. His observation that voicing often becomes breathy then voiceless (1973:246) has resonances with Ogden's work on voice quality in Finnish (2004) and with the data to be presented later.

2.3.2 Sangster 2001

Sangster's study is the only durational study of articulations to date. She hypothesised that there is no neutralisation of lenited phonological plosives with phonological fricatives and affricates. Thus, she claimed, there is a difference between “let” and “less” and between “let” and “let's”.

Her results show that in both word-initial and -final position, there are differences between lenited phonological plosives and phonological fricatives, for both voiced and voiceless categories. The difference is durational, with phonological fricatives always being longer than phonological plosives lenited to phonetic fricatives. Voiceless phonological affricates are also longer than voiceless phonological plosives realised as affricates. For voiced phonological affricates, however, there is some neutralisation with phonological plosives produced as affricates. As she mentions, however, this does not preclude other durational distinctions, such as on the vowel.

The importance of this study is twofold. Firstly, it shows that there are indeed differences associated with the plosive itself which allow speakers to distinguish between word pairs of the sort "let∼less". Secondly, it shows that there may also be differences which cannot be captured by reference to a purely segmental model, because the difference between "led" and "let" is not a property of the plosive alone. The importance of being able to model non-local exponency has been highlighted by Local (2003), and that the analysis in the following section addresses both local and non-local phonetic events.

2.3.3 Honeybone 2001a and 2005

Honeybone's theory of lenition inhibition is explained in his 2001a and 2005 papers, with reference to Liverpool English. Using voiceless alveolar and velar consonants, he claims that lenition will occur in all places unless it is inhibited due to the consonant being in a strong position. His definition of strength comes from the spreading of elements between segments (2001a:244), a process which he later refers to as "strength-through-sharing" (2005). Under this model, the cluster /nt/ should resist lenition because the two segments share |coronality| and |occlusion|. By the same logic, /lk/ should not resist lenition because there is no sharing of |coronality|.

With comparisons to Spanish and German data, he shows that similar constraints apply to lenition inhibition across the board. As well as the melodic (segmental) inhibition, there are also prosodic factors at work. Prosodically, certain positions are stronger than others, with "final" being one of the weaker positions.

Although the proposal put forward in these papers has the advantages of considering both prosodic and segmental information and of being able to make falsifiable predictions, it was shown by Watson (2007) that this model cannot account for the data from Liverpool English. Aside from the problems with defining elements (Watson 2007:66), it predicts lenition inhibition where lenition is not inhibited (for example in the cluster [lt] (2007:219)). The model also fails to account for some places where lenition is inhibited (for example, lenition is inhibited in [lp] but not in [lk] (*ibid.*)).

Another criticism is that Honeybone's model doesn't place much importance on phonetic detail, concentrating instead on the "stages" of lenition. Apart from the remarks above on the unreliability of lenition as a concept, the stance of this dissertation is that only categories shown to be relevant to speakers can be proposed. Phonetic details are paramount to the description of variability, and not their classification into stages.

2.3.4 Watson 2007

Watson's 2007 PhD thesis is the most recent and the most complete treatment of the variation in the final plosives in Liverpool English. It is the only study to consider *all* of the plosives as well as sociolinguistic and segmental constraints. Watson argues that phonology emerges from all phonetic detail, including sociolinguistic detail. Based on this, and his acceptance of segmental and subsegmental units, his thesis seeks to describe the phonetics of plosives in utterance-final position and to account for this using a phonological model, such as Honeybone's (2001a, 2005) strength-through-sharing. He also aims to shed some light on the frequency of lenition of each plosive and the social indexing of certain forms.

His presentation of the phonetic variants for phonological plosives in utterance-final position (2007:150-183) reveals a number of different variants for each plosive. Like Knowles (1973), he also notes voicelessness on vowels before voiceless plosives. He concludes from his data that lenition cannot be modelled as laxness (as Knowles (1973) described it) nor as elemental phonology, which fails to account for the phonetic detail (2007:197). Articulatory Phonology has certain advantages, but cannot describe lenition as a unified process, not predict its inhibition. Moving on to Honeybone's strength-through-sharing as a method of predicting lenition, he concludes (2007:225) that it is "difficult to defend across the board".

A final consideration is that this variability in Liverpool English is too entrenched to be affected by any strength, and Watson argues for a usage-based, exemplar model of the variability (2007:246) which contains information about the structured variability of the input for a child learning Liverpool English.

There are a number of important points developed by Watson's thesis. The evidence that strength-through-sharing cannot account for the variability is an important step, as is his conclusion about a usage-based model. It is reasonable to believe that a learner uses the entirety of the phonetic signal (including sociolinguistic information) from which to create a representation. These insights lead to the assumption held by this study that "lenition" cannot be used as a description or a model of Liverpool English.

Another important point of Watson's thesis is the treatment of aspirated plosives, which he does not treat as lenition (2007:40). Because of this, one of the phonetic variants of word-finality could not be considered with other variants. It is possible that this may have obscured some connections within the data. Local's (2003) work on Tyneside English plosives shows that the difference between aspirated and unaspirated is interactionally important, which means that we cannot assume it is not important in Liverpool English. Indeed, Lodge (2007:77) mentions that, although aspiration is presented as a characteristic of voiceless plosives, it is, in fact, only one of the possible timings of the plosive. This study hopes to build on such insights to provide a non-derivational model of final plosives.

2.4 Summary so far

The works cited so far have all contributed greatly to the knowledge on the phonetics and phonology of Liverpool English. Turn-final plosives have a wide range of realisations which may be socially, prosodically and segmentally constrained. However, there are some unifying features of the analyses above which this dissertation seeks to change. Firstly, there is a general acceptance of the segment as a real entity in preceding studies, which means that, for example, generalisations about voice quality over a stretch of talk (such as those alluded to by Knowles) cannot be made. Another recurrent feature is that of timing. Linked to segmental accounts, the difficulty in modelling timing of articulations has been observed, for example by Watson, who notes that elemental phonology cannot model phonetic detail (2007:197). A third common point is that all of the work so far has assumed a monosystemic phonology. Finally, while most studies have considered social categories as a constraint, none have yet looked at the role of variation in interaction. The aim of the following analysis is to search for interactional categories oriented to by speakers and to model the variability in a non-segmental, polysystemic way which specifies timing as part of its exponency statement (cf Local 1992). The methodology used for this model will be Firthian Prosodic Analysis (FPA), which is introduced in the following section.

2.5 An alternative approach

The sections above have shown that the term "lenition" is problematic, and the models of it in Liverpool English have not yet succeeded in explaining or predicting the segmental and prosodic constraints which condition it. In light of this, this section proposes an alternative way of considering the data.

Albrow's (1966) paper deals with mutation in Welsh, a phenomenon which also comes under the umbrella of "lenition". Although the variation is grammatically constrained in this case, the important thing about his analysis is that it is non-process based. Instead, he proposes a static phonological structure for the data, and handles phonetic variation *prosodically*.

Prosodic is to be interpreted differently from the usual understanding in this case. Albrow's analysis is done in the Firthian vein, an approach used by Firth and other linguists at the School of African and Oriental Studies in the mid twentieth century. FPA is a non-derivative, non-segmental model of phonology. The main importance of these factors for this study is that "lenition", a segmental process most usually described in terms of derivation, becomes an issue of variability and not a process. As Local (1992:200) notes, "processes" can be dealt with as "different kinds of parameter synchronization in the phonetic interpretation of the phonological representation". The variability in parameter timing is not necessarily restricted to a "segment", but may have ramifications over the whole word, or over even longer stretches. In contrast with the monosystemic approaches exemplified above, FPA advocates polysystemic analysis (Ogden 2006:485). Anderson (1985:181) summarises the reason for polysystematicity as different phonological meanings relating to different systems of contrast. One example is the nasal system in English (e.g Anderson 1985:184), which comprises two terms word-initially (bilabial and alveolar nasals) and three word-finally (bilabial, alveolar and velar nasals). The value of the alveolar nasal in these two systems is not the same by virtue of the different terms it contrasts with. Another key tenet of FPA is the congruence of levels – the production of a statement which relates to different levels of analysis (e.g. phonology and morpho-syntax (Ogden 1995:2)). This will prove to be important for the following analysis, as it includes statements about phonology *and* interaction.

The terminology of FPA refers to phonematic units, prosodies and exponency. Phonematic units correspond to positions in structure (Anderson 1985:185), they are the "building blocks of structure" (Ogden 1995:9), and represent a system of contrasts at this place in structure (Ogden 1995:6). Prosodies are phonological properties without a specific "place" (Anderson 1985:185). In his PhD, Ogden (1995:9) uses prosodies to model grammatical alternances in structure, syntagmatic functions, and features that are unique to a place in structure. The value of prosodies is that they can deal with wide range phonetics over a stretch of talk and allow different parameters to be represented separately.

The phonological statement as described above is connected with the phonetic features of speech via the statement of exponency. This is a non-derivational relationship which includes the timing of the exponents (Ogden 1995:46). Thus, variability is handled not by derivation, but by variable exponents of a category (Lodge 2007:70). Exponency is a renewal of connection between the phonology and the phonetics (Ogden 1995:41) and, by virtue of being able to generalise beyond the current material, can form predictions about other similar material (*ibid.*).

Albrow's work on Welsh mutation shows that at least grammatical "lenition" can be modelled with FPA. Simpson's (1992) work on a Suffolk dialect also shows how FPA can be used to deal with variation without resorting to rules or processes. Like other Firthians, he advocates the importance of starting from natural data, and rejects citation forms (cf. Ogden 2006:486). The model in chapter 5 is built on the principles used by Albrow and Simpson, and outlined in this section.

2.5.1 A note on terminology

Another feature of the Firthian tradition is the distinction maintained between phonetics and phonology (Ogden 2006:487, Local 1992:193). In the following sections, phonetic and phonological terms are kept separate. Where possible, this is achieved by using a different terms for each domain (e.g. labial (phonological) and labiality (phonetic)) and by using specific terms that relate to the phonology (e.g. Plos.-system, T^h). For clarity, possibly ambiguous terms are in *italics* when they refer to phonology, and in normal text when they are phonetic.

2.6 Summary of literature review and research questions

There are a few main points to be recapitulated from this section. It turns out that "lenition" may not be justifiable as a term. Indeed, in FPA (and conversation analytic) terms, the variability in final *plosives* may not be best described in terms of lenition, but in terms of social categories (e.g. gender) and of different exponents of places in structure.

Another conclusion is that there has been no work done on interactional categories and the role they may play conditioning the variation. Finally, there is as yet no representation for the phonology of turn-final *plosives* which does not rely on processes or monosystemic phonemic accounts. Perhaps such a representation would provide insights about the phonetic variability at this place in Liverpool English.

From this, the research questions for the analysis can be formulated:

1. Does the phonetics of turn-final *plosives* do anything other than social indexing? Are there interactional factors at work as well?

2. How can the phonetic variation observed at this place in Liverpool English be modelled in a declarative account, such as used in FPA?

3. Could this representation predict behaviour at other places in structure?

The next sections introduce the methods used to answer these questions and the analysis itself.

Chapter 3

Methods and Data

This section introduces the methods used to elicit, collect and analyse the data. Because the primary aim of this dissertation is phonological in nature, the main concern was to elicit as wide a range of phonetic variation as possible in the same "prosodic and segmental" environments.

3.1 Speaker selection

Students from the Health and Social Care course at Knowsley Community College were asked to volunteer for the study. The only criteria were an upbringing in Liverpool and English as a native language. A total of six speakers volunteered from this course, all female. This could well be due to the course group, in which male students are rare, however, it was the only accessible group for the study. In addition, family members volunteered to participate, with data from two family members being used. This included the only male in the sample.

The age of the speakers chosen was controlled so that only data from speakers between 16 and 21 was used. It was considerably harder to get an even number of male and female speakers, however. Although this would be a problem if this work were examining the difference between male and female use of variation, it should not be a problem for this study in which phonetic variability is not assessed in terms of sociolinguistic categories[1].

[1] Unless women and men do different things in a routine way for interaction.

3.2 The tasks

Each of the eight speakers was asked to complete five elicitation tasks and a short interview. The tasks were all presented as powerpoint slideshows so that participants could move at their own pace. The only exception was the map task, which was on paper. The five tasks were:

1. A map task
2. Reading a story
3. Deciding on names for a pub
4. A word fit task (see section 3.2.1)
5. Retelling the story

The interview was designed to get participants talking more freely about subjects such as the college and their course, the area where they live and any problems with gangs there, their thoughts on the city and its nightlife, and finally, stereotypes of Liverpool and its accent. In addition, for two of the speakers, free conversation was recorded for around thirty minutes.

Because the analysis of all of the data collected would have far exceeded the time available, the decision was made to concentrate exclusively on the word fit data from all eight speakers and the conversation between two speakers. The primary data source for the analysis was the conversation. The data from the word fit task were used to support the exponency statements and to generalise over the phonological structures, because the word fit data provided eight different instances of each token – much more than in the conversation alone. The total amount of data collected was 3 hours and 20 minutes, and the amount of data used was one hour and twelve minutes (36.4%).

3.2.1 The word fit task

The word fit task was designed to elicit all the *plosives*, in all segmental environments possible, but in the same prosodic environment.

The *plosives* chosen to be elicited were monosyllabic, uninflected forms. Table 3.1 shows the words elicited in the utterance-final position in this task. Where possible, at least three different words with the *plosive* in the same segmental environment were used, to maximise the data from each speaker. In this way, the analysis could generalise over all *plosives* in all phonotactic positions and in the same environment, which would have not been possible (in the time given) with conversational data alone.

Structure	*Plosives*					
CVP	at	bad	map	tab	sack	rag
	root	food	hoop		cook	
	beat	deed	sheep		sneak	
	light	hide	type		bike	
	it			rib		pig
				rub		bug
CVSP	fast		gasp		flask	
	rust				dusk	
	chest		crisp		risk	
CVNP	stunt	sound	bump		drunk	
	bent	bend	limp		drink	ring
	plant	band	ramp		rank	gang
CVLP	vault	old	gulp	bulb	sulk	
	felt	scald	yelp			
	quilt	child			silk	
CVFP	soft					
	gift					
	craft					
CVPP	rapt					
	crypt					
CVKP	tact					
	fact					
	strict					

Table 3.1: Elicited words in word fit task

The prosodic environment chosen was utterance final, and it was elicited by showing participants two words on a screen, which they then had to put into a phrase consisting of two intonation phrases:

I thought he said X but he said Y

An example of this would be the speaker seeing the words “cat” and “rat” on the slide, and producing:

e.g. I thought he said cat but he said rat

The utterance-final token of “rat” would then be analysed.

These data were used to supplement the observations made from the conversation analysis and to give a range of variability which could be captured in the model. Although it would certainly be preferable in terms of naturalness to use only conversational data as the basis for phonetic analysis (as Simpson (1992) argues), the time was not sufficient to do this. Instead, it was hoped that the data from the word fit task, by virtue of its not being read directly, were natural enough to provide variability, which seemed to be the case. Obviously, no statements about the use of the variables in interaction can be made from the word fit data, but the variation here can be considered when producing a model, and is of use to the exponency statements.

3.3 Recording and analysis

The recordings were carried out in a room at the college and, for family members, at home. One of the problems in the college was the occasional interference of noise from the corridor, but there were not too many unhearable tokens. All speech was recorded onto DAT tapes using a Tascam DAT recorder. The tapes were later transferred to digital format using Adobe Audition. The files were separated into tasks, and where necessary into smaller portions and analysed in Praat.

Analysis was done auditorily and acoustically, placing emphasis on parametric analysis and impressionistic listening. Phonetic forms and descriptions were noted and compared between speakers and phonotactic environments.

Once the initial phonetic analysis had taken place, the conversational data was transcribed. From these data, sequences in which *plosives* were at possible transition relevance points (TRPs) were selected for further analysis. This analysis was carried out in the CA methodology.

The phonetic observations and the findings from the conversational data were used to create an abstracted phonological representation and a statement of exponency.

Chapter 4

Analysis

4.1 Phonetic observations of the data

4.1.1 Introduction

This section presents the findings of the data analysis. As mentioned previously, the object of the data collection was to collect *plosive*-final words in turn-final position. The data from the conversation and from the word-fit task are discussed in this section.

4.1.2 The structure of the data

As Whitley (Simpson 2005:71) notes, there are three places of articulation possible for word-final *plosives* in English. She represents this as a three-term phonematic system, $\{P_1, P_2, P_3\}$. This three-term phonological system (the Plos.-system) is represented more mnemonically here as {P, T, K}, as shown in figure 4.1.

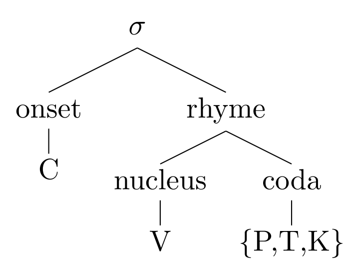

Figure 4.1: The three-term Plos.-system

For each of the three phonematic terms, there is a voicing distinction. It has long been recognised that the difference between *voiced* and *voiceless plosives* is not a property of the *plosive* alone, and the treatment of this distinction is discussed in chapter 5. For now, it is enough to note that there is a difference between “bit” and “bid” which can be represented as T^{h} and $\mathrm{T}^{\hbar}$, as shown in figure 4.2.

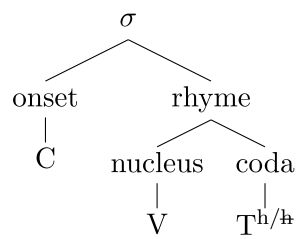

Figure 4.2: The voicing distinction

The data show that there are three different syllable structures possible at this place. The first possible shape is CV-Plos., as shown in figure 4.3.

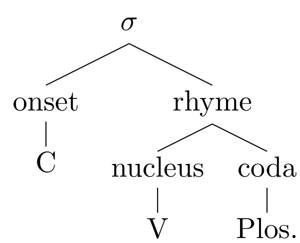

Figure 4.3: CV-Plos. words

The second is CVC-Plos., where C is another coda *consonant* (but not a *nasal*). The place of articulation at Plos. determines which *consonants* can occur in the second C position. Figure 4.4 shows this structure.

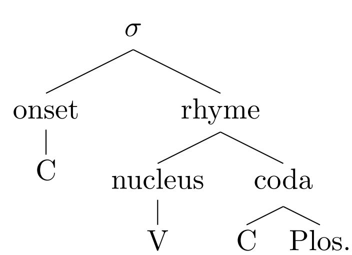

Figure 4.4: CVC-Plos. words

Finally, there are words with a *nasal* preceding the *plosive*. In Whitley’s analysis (Simpson 2005), *nasals* and *plosives* are treated as a linked system, a route this analysis follows. They are treated differently from CVC-Plos. words because the nasal articulation is always homorganic to the phonological place of the *plosive*. Also, nasality does not have a place in structure so much as a time. Nasality in CVN-Plos. words can stretch over the vowel and is present in an occlusion homorganic to the articulation made at Plos. The treatment of CVN-Plos. words will be discussed in chapter 5, but for now, the *nasal* will be represented in lowercase letters to show that it is not quite the same as other units (figure 4.5). It is also represented in the same slot as Plos. The reason for this is the homorganicity of the two articulations, which are linked to each other more tightly than other than other coda clusters.

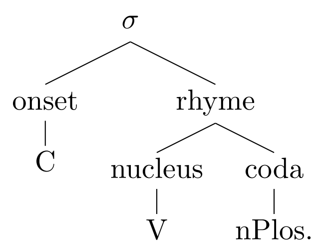

Figure 4.5: CVN-Plos words

Although there are some 'gaps' in phonotactic possibilities, such as which vowels can appear in the nucleus, or which coda structures are possible, the figures in this section give a general overview of the data. The following section presents some general observations that can be made over this structure.

4.1.2.1 General observations

There are four features which were common to all of the data, regardless of the word shape:

1. The presence of voicelessness in the vowel or penultimate consonant is only found in words with *voiceless plosives*. Table 4.1 shows some realisations of words with final *voiceless plosives*. Note that words ending in *voiceless plosives* do not have to have a voiceless portion on the vowel.

Word	Example realisation
Sheep	[ʃii̥p][1]
Sick	[səə̥kh]
Deep	[tsii̥p]
Crap	[kɹa̰p]

   Table 4.1: Words ending in *voiceless plosives*

   Conversely, only words ending in *voiced plosives* were observed with voicing in the final stricture. Again, voicing in the final stricture is not categorical in these words. Table 4.2 gives some examples of words ending in *voiced plosives*.

Word	Example realisation
Club	[klṵb]
Bag	[ba̰g]
Slag	[sːla̤g]

   Table 4.2: Words ending in *voiced plosives*

2. There are very few unreleased closures in the data.

3. The voice quality in the rhyme (during the vowel and any penultimate nasal or lateral articulations) often changes with time. When it does change, there is an ordered progression from modal voice, to creak, to breathy voice, to voicelessness (if this is possible). Not all qualities are necessarily produced, but the order that they occur in is always this one[2]. Table 4.3 gives some examples of voice quality changes.

[1]The IPA transcriptions use vowel and consonant symbols in succession to depict changing qualities over the course of time.

[2]This observation has already been made for Finnish data by Ogden (2004), where he shows that it is a part of turn-ending.

Word	Example realisation
Root	[ɹuṳu̥s]
Start	[sːaa̤ḁs]
What	[wɒ̰ɒ̥]

Table 4.3: Changes in voice quality

4. At the ends of some words there was audible low-pressure glottal friction (different to the high pressure friction associated with aspiration), shown in table 4.4. This low pressure glottal friction is written as [h] to contrast with higher pressure friction (aspiration), written as [$^{\mathrm{h}}$].

Word	Example realisation
Hurt	[ɜ̰ːsh]
Lot	[lɒɒ̥tsh]
Sick	[səə̥kh]

Table 4.4: Release of low pressure glottal friction

4.1.2.2 Final variation

The exponents found at the place in structure represented by Plos. were highly variable in the data. The variation is constrained by syllable structure and speaker, and may also be constrained by interaction. The variation is discussed in more detail in section 5.4, but for now it can be noted that some of the possibilities include:

- unreleased closure. An example spectrogram is given in figure 4.6.

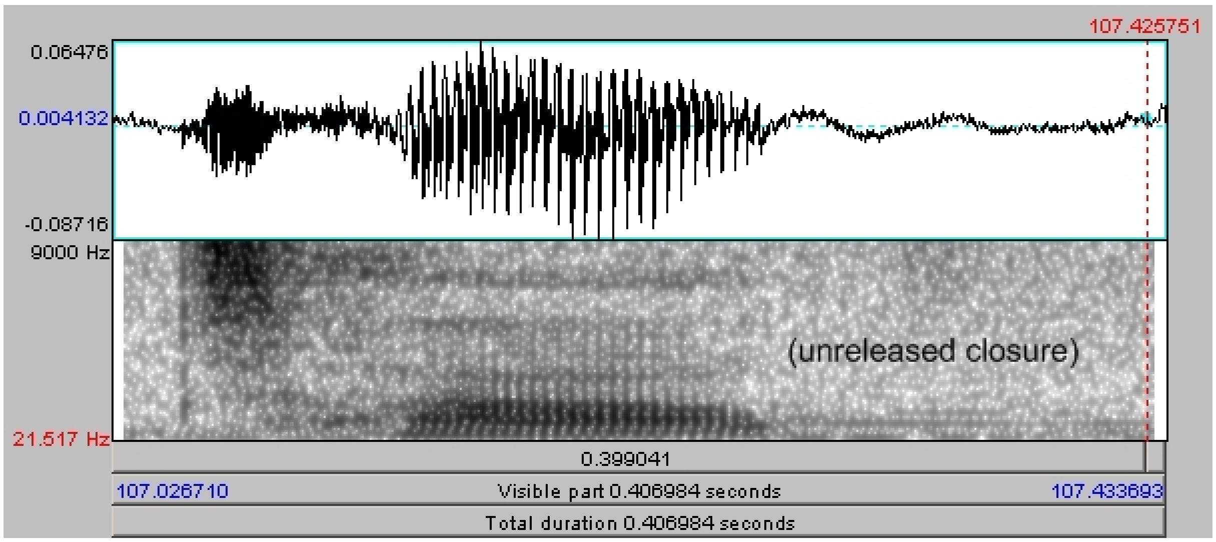

Figure 4.6: Unreleased closure ("tab")

- audibly released closure, figure 4.7.

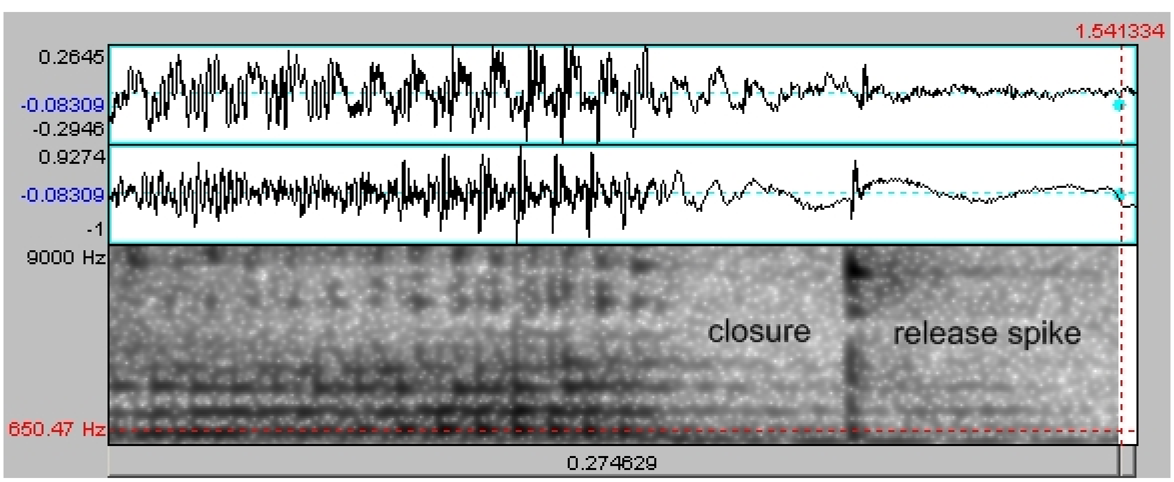

Figure 4.7: Closure with audible release ("head")

- closure released with high-pressure glottal friction
- closure released with low-pressure glottal friction.
- closure released into close approximation (figure 4.8).

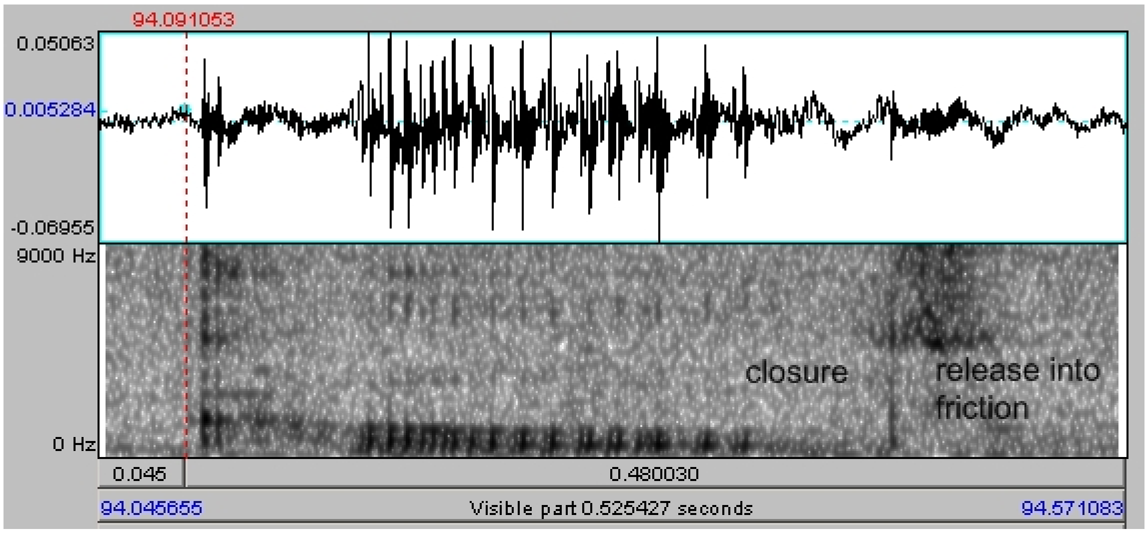

Figure 4.8: Closure released into close approximation ("cold")

- close approximation (figure 4.9).

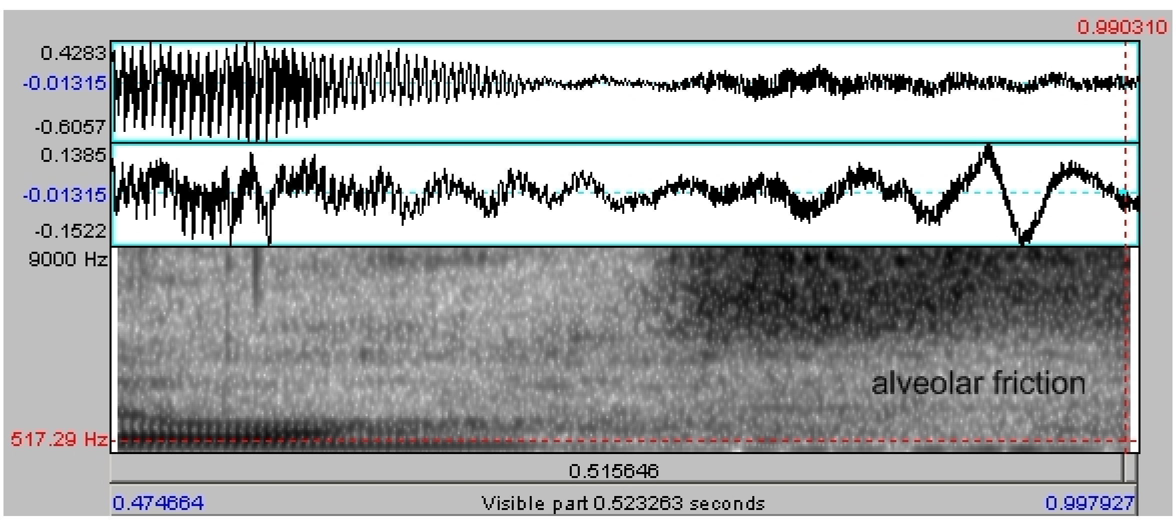

Figure 4.9: Close approximation ("lost")

- open approximation (figure 4.10).

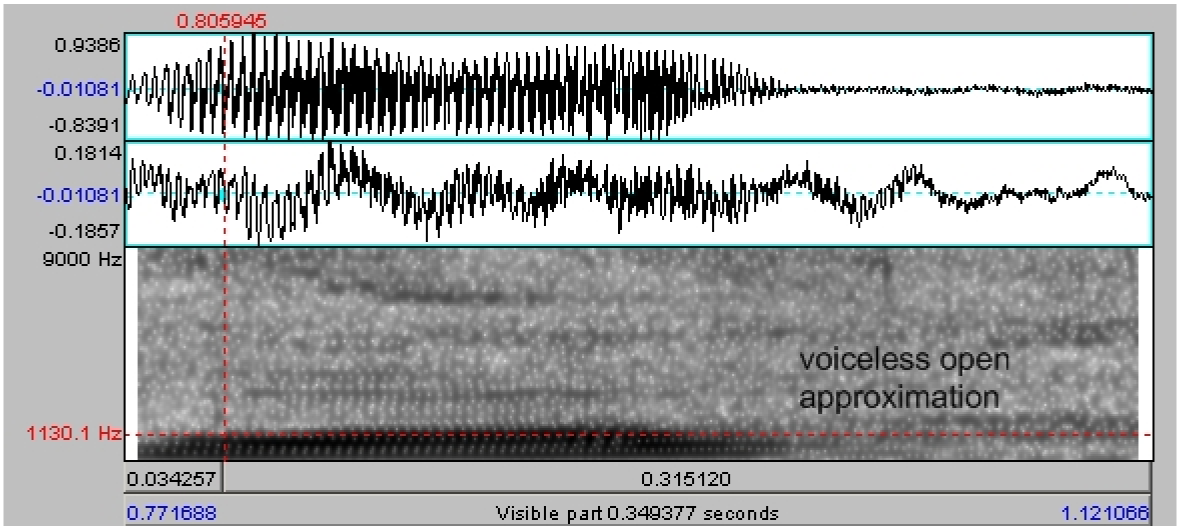

Figure 4.10: Open approximation ("what")

4.1.3 Conclusions

There is a wide range of variability over the structure presented in this section. Some of the variability is timed at the end of the word and some is timed to happen over the course of the word. The variation chosen by a speaker at any given time will not be random, however. Final variation has been shown to be socially constrained, varying along age, gender and class parameters.

A gap in the research done on Liverpool English to date lies in the consideration of this variation from an interactional perspective. Local's (2003) work on Tyneside English shows that aspiration can be seen as a prosody of turn-finality. It is therefore relevant to ask how speakers of Liverpool English use variation in interaction, as a comparison with other varieties which do not have such a wide range of variation. Section 4.2 analyses conversational data to see how speakers of Liverpool English signal that speaker change is relevant. The variants used at this place in structure are found to be relevant to turn-taking in conversation.

Based on the evidence that speakers can produce and orient to different variants as having different interactional functions, chapter 5 proposes a representation to model a phonology of *plosive*-final words at possible transition relevance points.

4.2 Interactional uses

4.2.1 Introduction

As mentioned in the previous sections, no study has yet looked at whether the variation in turn-final *plosives* in Liverpool English does any interactional work. Various CA studies (e.g. Walker 2004) have considered the phonetics of turn-ending in a general sense, showing that there are certain features produced and oriented to by speakers which signal turn-ending, and that turns are meaningful units for coparticipants (*ibid.*, Sacks et al. 1974, Drew 2005). Local's 2003 paper also showed that turn-ending can be signalled in a particular way by a particular dialect. It is therefore possible that the high variability of turn-final *plosives* in Liverpool could be doing interactional work.

With this in mind, the following sections examine data from a half-hour free conversation to see if and how the variation in turn-final *plosives* is used to signal or block transition relevance. Since any TCU which is syntactically, pragmatically and prosodically complete ends in a TRP, any TCU can therefore constitute a turn (Walker 2004) and can lead to speaker change. One of the problems for current speakers at TRPs is to signal that change can or cannot happen. Conversely, other coparticipants must know when they can or cannot begin talking. Knowing when talk can begin or end involves two things – knowing that there are certain places in structure where this can happen, and knowing how to interpret the things that happen there.

The problem with transition relevance, however, is that coparticipants are not obliged to take a turn at all points at which it is relevant to do so (Selting 2000:478). As well as not taking up a turn, coparticipants can take visual turns (nodding, smiling), which cannot be heard on a recording. The difficulty is establishing the difference between turn-endings that make speaker change relevant (but which do not lead to it) and turns where transition relevance was blocked.

To combat this problem, the following analysis first looks at sequences which are interactionally designed to promote transition relevance – interrogatives. Any features of variability found in turn-final position here therefore belong to the phonetics of "doing transition relevance". The analysis then generalises these findings to other types of turn.

4.2.2 Question-Answer pairs

From the half-hour conversation, twenty-eight question-answer pairs were selected and analysed in which a word with a final *plosive* occurred turn-finally. Although a variety of realisations of the final rhyme were observed, there was one feature which held across the data. This feature can best be described in Walker's (2004) terms, that ending is marked by a tendency towards an open configuration of the vocal tract (OCVT). Within all twenty-eight pairs analysed, only two of the tokens in the data set were produced with a final closure, and both of these closures were released. The other twenty-six tokens had no final closure. Instead, there was close approximation or open approximation, as shown in table 4.5.

Production of final *plosive*	Number of tokens
Unreleased closure	0
Released closure	2
Close approximation	10
Open approximation	16
Total	28
Total OCVT tokens	28

Table 4.5: Turn-final *plosives* in question-answer sequences

Participants orient to the production of relatively open articulations[3] in turn final position as being a part of the prosodic completeness of a turn.

Example (1) shows how speaker A promotes transition relevance in line 3, which speaker B orients to by taking a turn in line 4. Speaker B has started to ask a question in line 1, which he breaks off and answers himself in line 2. Speaker A reuses his syntax from lines 1-2 to ask a question (l.3), replacing the gap left by speaker B with the question word "what". The turn is pragmatically and syntactically complete at this point, and there is a falling pitch contour on "what", as shown in figure 4.11[4]. There is a glottal closure in "what" in line 3, which is released into low pressure glottal friction. Speaker B orients to these features as being transition relevant, and takes a turn in line 4. Speaker B's turn matches the question syntactically, with the wh-word being replaced with the word he missed out in his turn in line 2.

[3] Meaning that there are a range of options for the final sound, and the one chosen is more open than other possibilities.

[4] This was the only pair in the question-answer data with a final fall in pitch on the interrrogative turn. Other examples had a final pitch rise. However, both final rises and falls have been analysed as being a part of turn-ending for other languages and dialects (e.g. Selting 2000, Local et al 1986, Walker 2004). Although pitch wasn't the focus of this analysis, the data seem to follow similar patterns to those reported in other work.

(1)	1	B	[did you watch] thingie last night Britain's got
	2		mor- oh no you never did you
	3 →	A	Britain's got more what
			[wɒ̰ʔh]
	4	B	Britain's got more talent

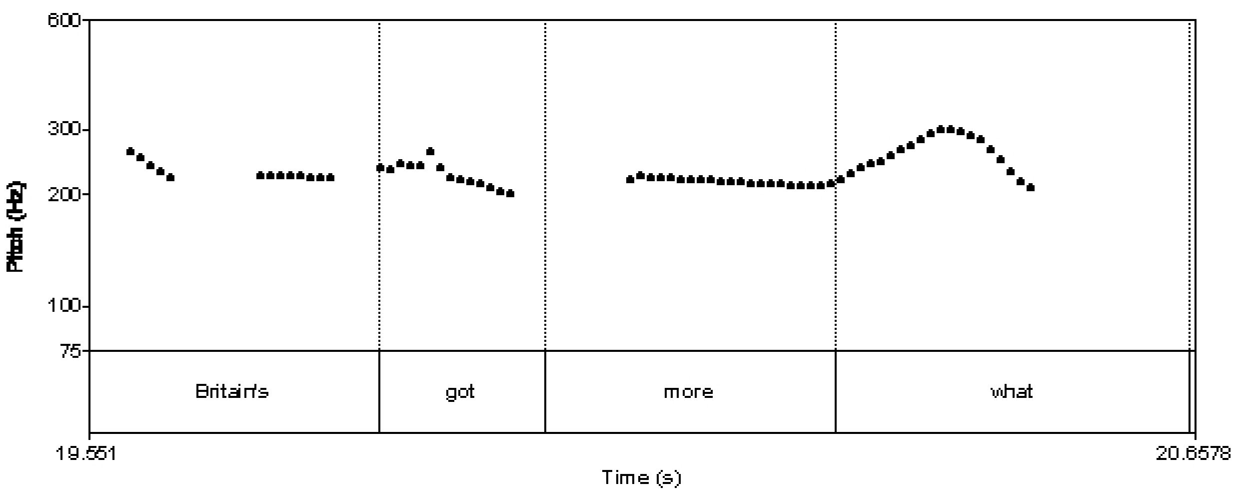

Figure 4.11: Pitch contour for example (1)

Example (1) and others in the data show that one of the the exponents of OCVT oriented to as transition relevant is the release of low pressure glottal friction at the end of a sound. This was a feature of example (1), and also occurs in example (2).

In example (2), speaker B's turn in line 1 is interrogative – it starts with a wh-word, and is syntactically and pragmatically complete at "kitkat". Figure 4.12 shows the intonation contour for line 1 where there is a slight rise in pitch on the last syllable of kitkat. There is a final apical closure in "kitkat" in line 1, which is released into close approximation followed by low-pressure glottal friction. Speaker A orients to these features as being transition relevant and takes a turn.

(2)	1 →	B	what's your favourite kitkat
			[kikha̰tsh]
	2		(0.9)
	3	A	normal kitkat .hh the four stick one

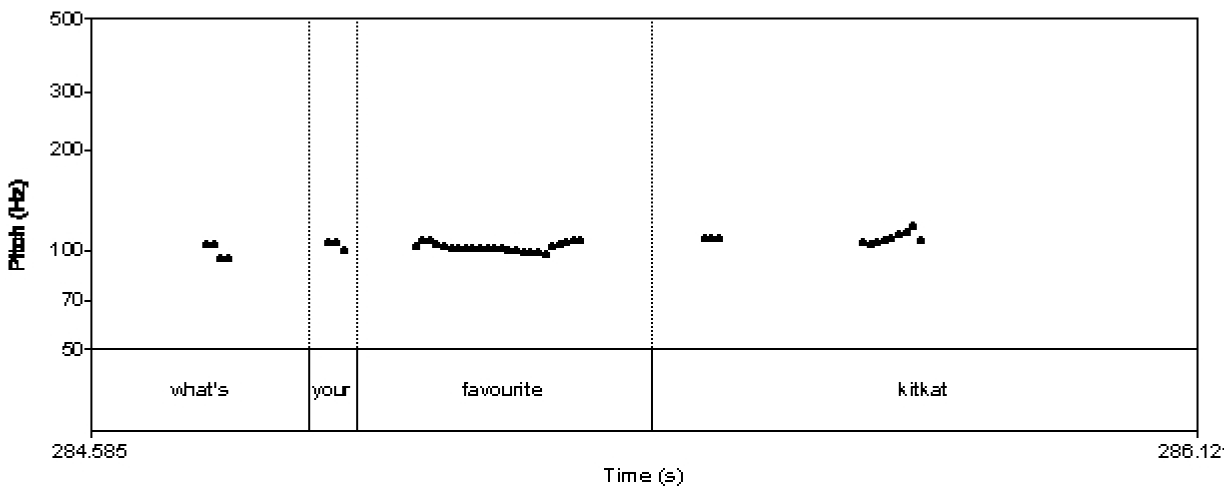

Figure 4.12: Pitch contour for example (2)

In example (3), there is another instance of final low-pressure glottal friction. Speaker A produces a question in line 1 which starts (after repair) with subject-verb inversion. This turn is pragmatically and syntactically complete at "tonight" in line 1. Speaker A's pitch has been fairly low and level over this turn. It then steps up slightly on "tonight" with rising intonation on the final syllable. There is alveolar friction at the end of "tonight", followed by low pressure glottal friction. Speaker B takes a turn straightaway.

(3)	1 →	A	wha- are you doing anything	tonight
				[tsnẽɪ̃ɪ̤̃sh]
	2	B	yeah	

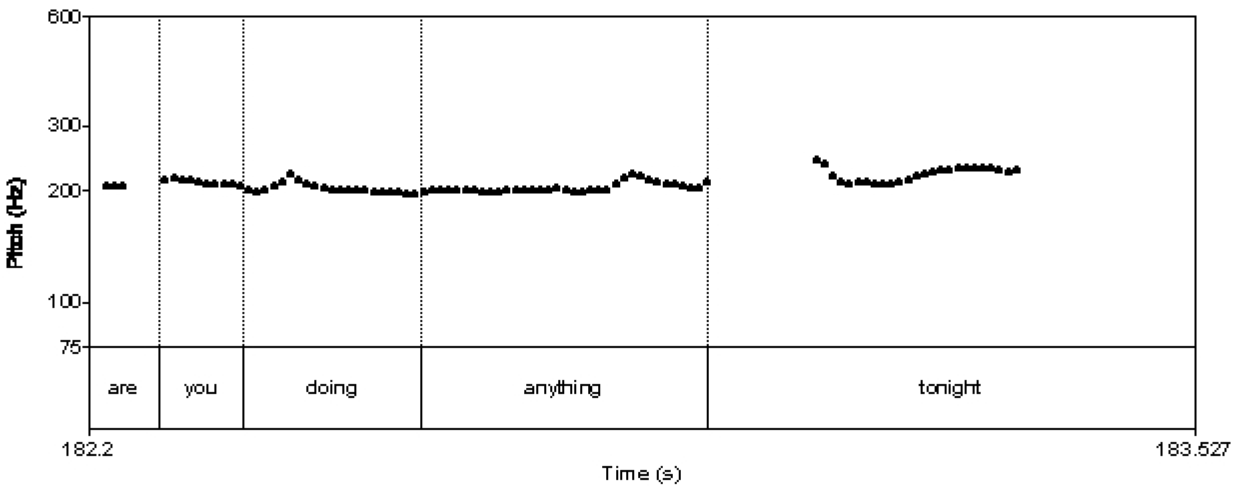

Figure 4.13: Pitch contour for example (3)

When there is neither closure nor close approximation (the phenomenon referred to as "t-h" by Watson (2006b)), the turn finishes with open approximation (often breathy or voiceless) with the resonances of the final vowel. Again, this form of an OCVT is oriented to as being a part of transition relevance by participants.

Example (4) shows how both speakers orient to the TRP in line 3 where speaker A reuses the syntax from speaker B's turn in line 2. Speaker A's turn in line 3 is constructed by replacing the syntactic gap left by speaker B in line 2 with "what". Speaker A's turn in line 3 is syntactically and pragmatically complete. There is a rise in pitch on "what", as shown in figure 4.14. There is no closure at the end of "what" in line 3; instead there is open approximation and voicelessness. Both speakers orient to the TRP at this point. Speaker A stops talking, and speaker B begins a turn.

(4)	1	A	no I don't well I don't know why you want me to do it
	2	B	to prove
	3 →	A	to prove what
			[wɒɒ̤ɒ̥]
	4	B	that you can do it

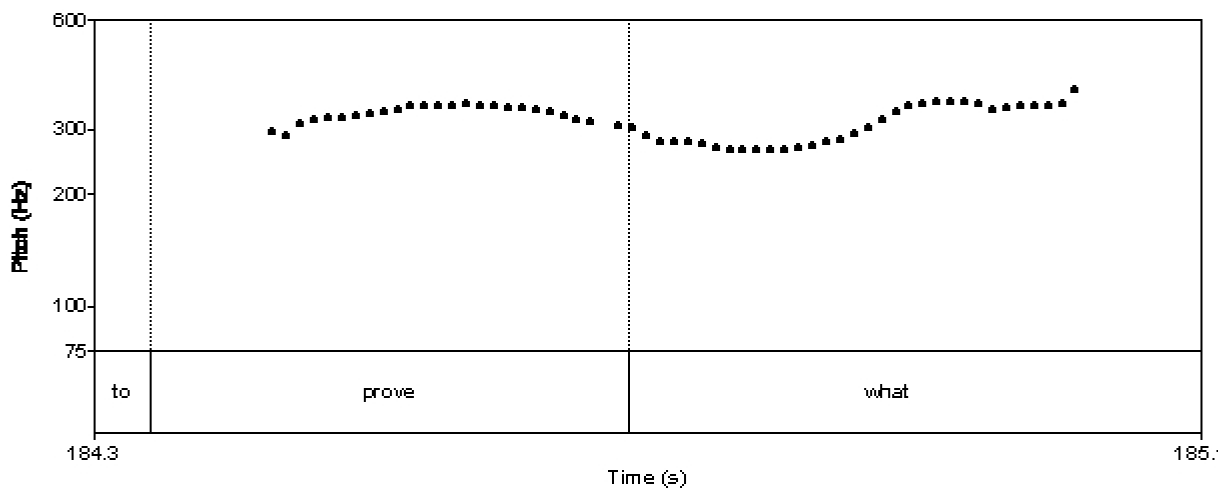

Figure 4.14: Pitch contour for example (4)

The productions of voiceless vowel articulations and low-pressure glottal friction are very similar. Both involve a fast airflow through an OCVT, which has the resonances of the preceding configuration. Indeed, [h] is often analysed as a voiceless vowel. The examples discussed thus far show that (voiceless) open approximations and low-pressure glottal friction are oriented to by participants as being exponents of an OCVT which signals transition relevance.

Another display of the relevance of open approximation for transition relevance can be seen in example (5). Speaker A is taking a longer turn about theory test revision. At line 7, there is a TRP at “right”. Speaker A’s turn is syntactically, pragmatically and prosodically complete (with a final pitch rise) in line 7; it appears that she has finished recounting her friend’s success with the practice theory questions. There is close approximation followed by low pressure glottal friction at the end of “right” in line 7, which has been shown to be a way of marking a TRP. Speaker A laughs and takes an inbreath.

In lines 8-9, both speakers come in with a turn. Speaker B’s turn in line 8 is a question about speaker A’s own results for the questions. He seems to be orienting to the TRP at the end of line 7. Speaker A’s turn in line 9 is in overlap with speaker B’s question and seems to be a continuation of her previous turn, which she projected with the inbreath at the end of line 7. It fits syntactically to her previous turn, as it begins with “cos”. This continuation suggests that the story she was telling was not complete at the TRP in line 7. Speaker A breaks off her turn in overlap in line 9, takes an inbreath and continues when she is in the clear with a reason why her friend had all the answers right (l. 9-10). There is a pause and then speaker A explains that she doesn’t want to work on the theory test (l.10). In overlap with the end of speaker A’s turn in line 11, speaker B takes a turn in line 12 to ask the same question as he did in line 8. There is a pause, and then speaker A answers the question in line 14.

Speaker B’s questions in lines 8 and 12 highlight the use of an OCVT to mark a TRP. Speaker B’s turn in line 8 is an orientation to speaker A’s TRP with an OCVT in line 7. In addition to this, both of his questions (l.8, l.12) finish on an OCVT. When the question in line 8 does not get answered, his own orientation to the TRP in it is to ask the question again in line 12. He acknowledges the turn that A has taken with “yeah but” and uses the same words, pitch contour (figure 4.15) and an OCVT to ask the question again. In line 14, speaker A answers the question, orienting to the TRP at “get” in line 12.

(5)	1	A	well you know it’s got questions in .hh she was erm she’s- you know
	2		the hazard (.) awareness: bit
	3	B	hazard perception
	4	A	ha- yeah that th- there was like a little bit on it in that .hh
	5		and erm like you can tick off (0.7) like cos it’s got like actual
	6		questions and you can tick them off .hh and [name]’s
	7 →		like got them all right (laughs) .hh
			[ɹaish]
	8 →	B	[what did you get]
			[gɛ̰ɛ]
	9	A	[cos she fou-] .hh it was the second time .hh erm she passed her
	10		theory (1.6) but I can’t be bothered
	11		[to do anything]
	12 →	B	[yeah but what did you get]
			[ɯɭɛ]
	13		(1.0)
	14	A	I don’t know I didn’t- I wasn’t like doing it properly I was
	15		just having a go just to like
	16		(0.5)
	17		[ge-]
	18	B	[so] you never even looked if you had the answer right

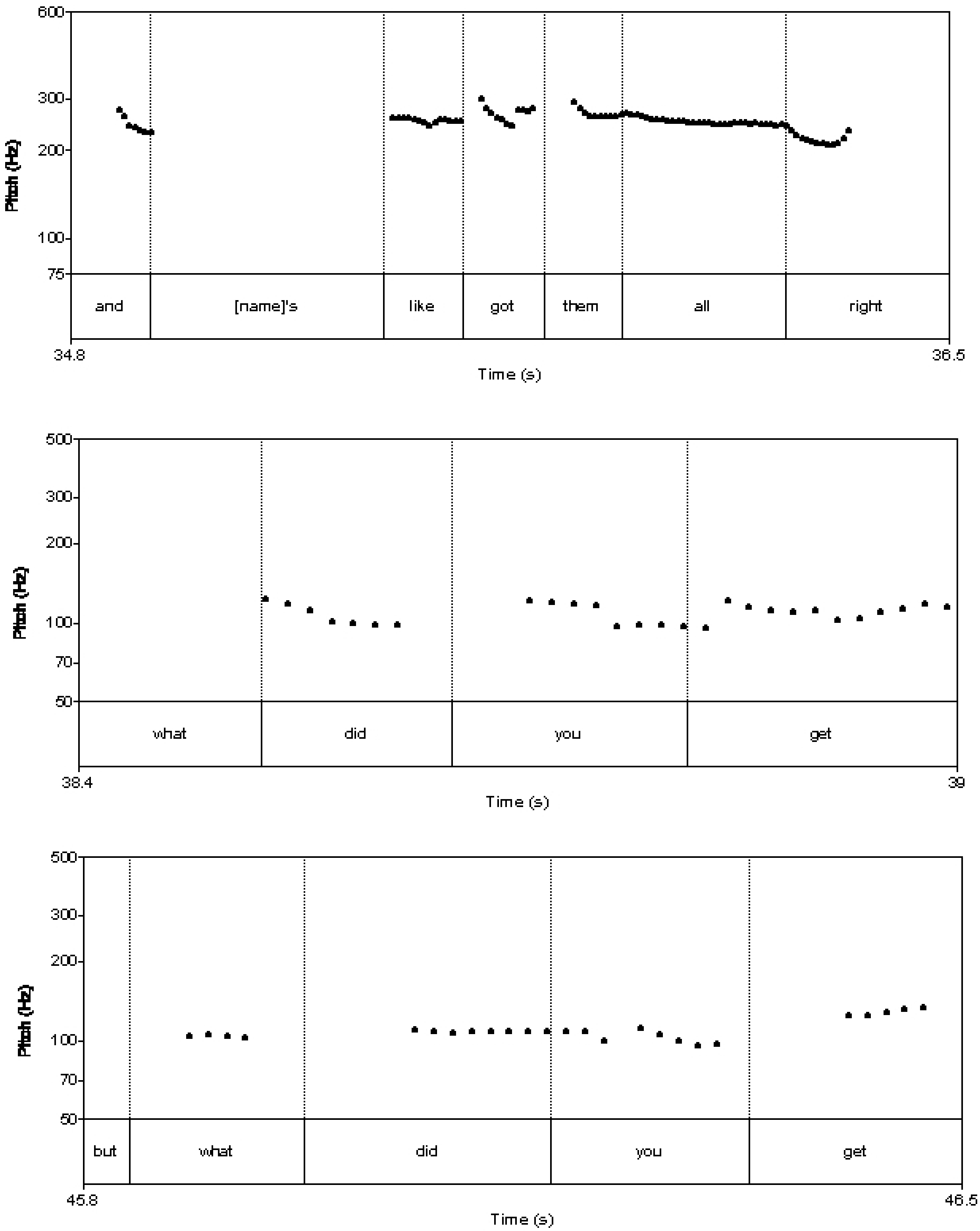

Figure 4.15: Pitch contour for example (5)

4.2.2.1 Summary

The question-answer sequences suggest that the phonetics of marking transition relevance in Liverpool may well correspond to Walker's (2004) OCVT observations. Closure is rare, and when there is closure, it is released. There is often a considerable release of air, either via glottal friction or via voiceless vowels with a lot of airflow. One possible interpretation of these phenomena is that they are similar to exhalation, which was also one of the features that Ogden (2004:35) notes as being a part of signalling that a speaker's turn has ended. The final pitch movement is either a rise or a fall. Coparticipants orient to these features as being a way of marking transition relevance, by taking a turn.

The following section examines some other points in the conversation where speaker change occurs, to compare the features of turn-ending with those noted here. The analysis then turns to TRPs where no speaker change occurs to see if there are differences in the phonetics of TCU-final words in such instances.

4.2.3 TRPs in other sequences

Having looked at pairs where the sequential organisation is one of the things that makes speaker change relevant, this section generalises the findings to TRPs in other sequences. The aim of this section is to look at TRPs where transition relevance is oriented to (with speaker change). The features at these TRPs are then compared with projected TRPs where there is no orientation to transition relevance, possibly because the projected TRP has been blocked.

Fifty-one instances of *plosive*-final projected TRPs were collected and analysed. Thirty-one of these were followed by speaker change, nine of them with a "break" (either a pause or an inbreath[5]) and twenty-two of them with no break. The other twenty were not followed by speaker change. Five of these twenty had no break between the TRP and the following talk and the other fifteen either had an inbreath or a pause. These are shown in table 4.6

[5] Pauses and inbreaths are not being treated as the same, nor are all pauses considered to have the same function. The important factor at this stage is that both mean that the current speaker has stopped talking.

	Followed by speaker change		Not followed by speaker change	
	With break	Without break	With break	Without break
	9	22	15	5
Total	31		20	
Total	51			

Table 4.6: Breakdown of TRP instances

The following sections present evidence that the thirty-one instances of speaker change follow similar patterns to the question-answer pairs, with both speakers orienting to transition relevance marked by an OCVT. In the instances of no speaker change with no break, it is shown that participants use certain resources to block a projected TRP. The blocked TRP is oriented to by the current speaker (who continues) and the other speaker (who does not take a turn).

4.2.3.1 Instances of speaker change

As observed for the question-answer sequences, there is an overwhelming tendency towards an OCVT at the end of a turn which is interpreted as being transition relevant. Thirty out of the thirty-one projected TRPs which were oriented to as transition relevant ended in an OCVT. The only instance which did not was the word "think", which may have a separate phonology[6].

An indication that an OCVT is treated by participants as marking transition relevance regardless of the way it is articulated is exemplified by examples (6) and (7). Both examples show participants orienting to the TRP at the word "lost" in line 1, which is also marked in both cases with a final pitch rise. The current speaker stops talking, and the other speaker takes a turn. Despite the fact that the phonetic exponents of the final *plosive* are different, the participants treat them as belonging to the same category – as denoting change-relevance. For any phonetic exponency statement, therefore, there may be more than one segmental representation.

[6]Local's 2003 paper discusses the lexical and interactional uses of "think". The token in the conversational data here patterns with his tokens with an interactional function – turn-finality. Although there is no OCVT here, the separate phonology of "think" ensures that a projected TRP is oriented to as transition relevant.

(6) 1 → A (1.0) so you lost

[lɒɒ̥s]

2 B would I wouldn't have lost would I

(7) 1 → B I was losing I never lost

[lɒɒ̥sth]

2 A .hh and I've won you again- at pool as well sometimes

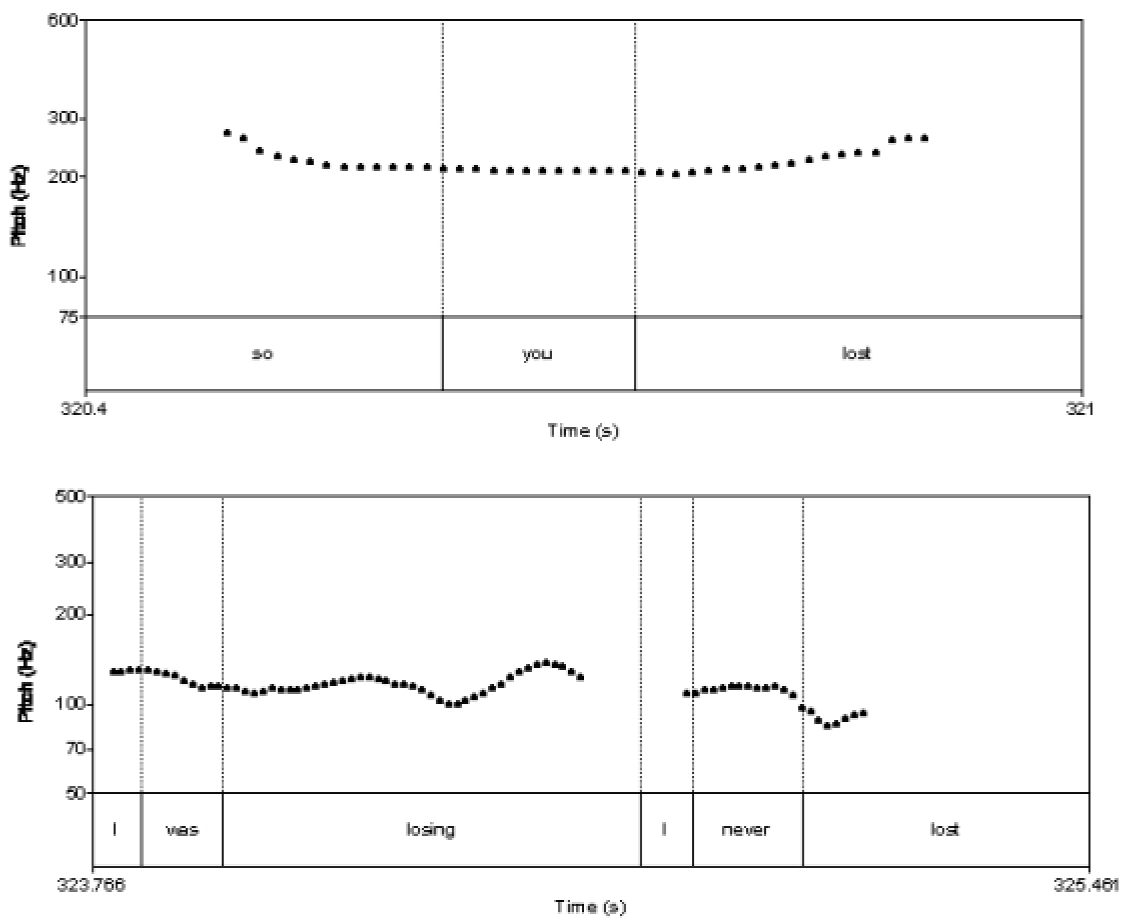

Figure 4.16: Pitch contours for examples (6) and (7)

More instances from the data which support the OCVT claim are shown in examples (8), (9) and (10). The final words in the arrowed turns are at syntactically, prosodically and pragmatically complete points and are all produced with an OCVT. They are all treated as transition relevant. In examples (9) and (10), the final labial closures are audibly released without much pressure behind the closure. The closure in example (8) is made with a tighter closure, and is released into low pressure glottal friction.

(8)	1	B	I know and then you've got to start doing me dressings
	2 →	A	ah no I'm not .hh I can't [name] I'll be sick
			[səə̥kh]
	3	B	you'll have to just only a bit of cleaning

(9)	1	B	it's only one little innard
	2 →	A	it isn't it's- it's like you said it was four centimetres deep
			[tsii̥p]
	3	B	four centimetres long two and a half deep

(10)	1 →	B	four centimetres long two and a half deep
			[tsi̥p]
	2	A	so- that's still like loads deep that's like still touching your
	3		[spine or something]
	4	B	[(inc)'s gone topless]

Example (11) demonstrates the orientation of participants to TRPs marked with an OCVT in a longer sequence. In lines 4-5, speaker B checks whether speaker A knows an original TV show from which another show (which B knows that A has not seen) was developed. It is possible that her response here is visual and negative, because speaker B continues his turn with “no” (l.5), suggesting that she has indicated that she does not know it. Speaker B’s knowledge gives him a longer turn to explain the original show first of all (lines 5-7), and the newer show which follows it (lines 7-10). In line 10, there is a TRP projected by the syntactic and pragmatic completion of the turn about the newer show. There is a final pitch rise (figure 4.17) and an OCVT on the final word of the turn, “neck”, which is followed by an inbreath (l.10).

In lines 11 and 12 both speakers talk. Speaker A seems to be orienting to the transition relevance of the possible completion of the turn in line 10. Speaker B continues with his turn, as projected with his inbreath in line 10. Speaker A’s turn in line 11 is minimal, and speaker B repairs what was said in overlap when he is in the clear in line 12. This could possibly be an orientation on both of their parts to the fact that speaker B has secured a longer turn to tell a story. Speaker B’s turn in line 12 explains how the neck dislocation was achieved.

At “head” in line 13, speaker B’s turn is complete and ends on an OCVT and a final pitch rise. Speaker B orients to the TRP and stops talking. Speaker A produces a delayed response in line 15, the same token as in her turn in line 11. Speaker B’s turn in line 16 treats this as her not having understood the story, as he provides another explanation in lines 17-18. There is a projected TRP at “head” in line 17, which also ends on an OCVT, but which is followed by an inbreath. Speaker A does not take a turn here, and speaker B continues his turn in line 18. At “around”, his explanation is finished and there is an OCVT and a final pitch rise. Again, speaker B orients to this by stopping talking. Speaker A takes a turn in line 20 after a pause, which begins with “eee” (like in lines 11 and 15) and continues into an understanding check of the story, which she will need in order to provide an assessment. Speaker B confirms her understanding (l.21) and speaker A takes a turn (l.22), prefaced again with “eee” to comment on the story. After a pause, she repeats her turn.

Figure 4.17 shows some of the intonation contours in speaker B’s talk in this example (11). His pitch is fairly low and quite level, with pitch rises at projected TRPs. The similarities between the pitch contours for TCUs suggest that the intonation contour is not only projecting TRPs, but the fact that is repeated is also being used to create coherence within the larger activity of telling the story. Speaker A's reuse of "eee" in all her turns may achieve a similar goal. Both speakers are using resources to make the story a unit, despite the understanding problem speaker A seems to have. Speaker A's repeated turn in line 22 seems to close the sequence, as it is followed by a long silence.

The importance of this example is that it shows how transition relevance is handled within the larger activity of story-telling. At each projected TRP, speaker B finishes on an OCVT and with a rise in pitch. Some of these TRPs are oriented to with a turn from speaker A (e.g. l.11) and some are not (e.g. l.17). Speaker A also orients to the larger activity, using repeats of "eee" at the beginning of her turns, and by not continuing talking in overlap with speaker B (who has secured the longer turn) at line 11.

(11)	1	B	[did you watch] thingie last night Britain's got
	2		mor- oh no you never did you
	3	A	Britain's got more what
	4	B	Britain's got more talent you know the Britain's got
	5		talent show (0.8) no well it's just a talent show you
	6		can go on and do whatever you want an .hh Simon Cowell and
	7		Piers Morgan and Amanda Holden are the judges .hh but on ITV
	8		two after it's got Britain's got more talent (.) and it had
	9		this fella who (.) went on to like get judged and he
	10 →		can dislocate his neck .hh
			[nɛ̰χ͡x̟[7]]
	11	A	[eee]
	12	B	[and he put-] put his head he put his head on the floor and
	13 →		can run around his head
			[ɛ̰t̻]
	14		(1.1)
	15	A	eee
	16	B	like like he's like sort of in the crab position (0.3) but just
	17 →		holding himself up with his head
			[ɛ̰t]
	18 →		.hh and then runs around
			[əɹa̰ːnt]
	19		(0.7)
	20	A	ee that's and his head stam- stays the same way
	21	B	yeah
	22	A	ee that's disgusting (1.7) ee that's disgust- euh
	23		(8.3)

[7] The symbols [χ͡x̟] represent a forward-sounding velar fricative accompanied by "uvular scrape" (Knowles 1973:252)

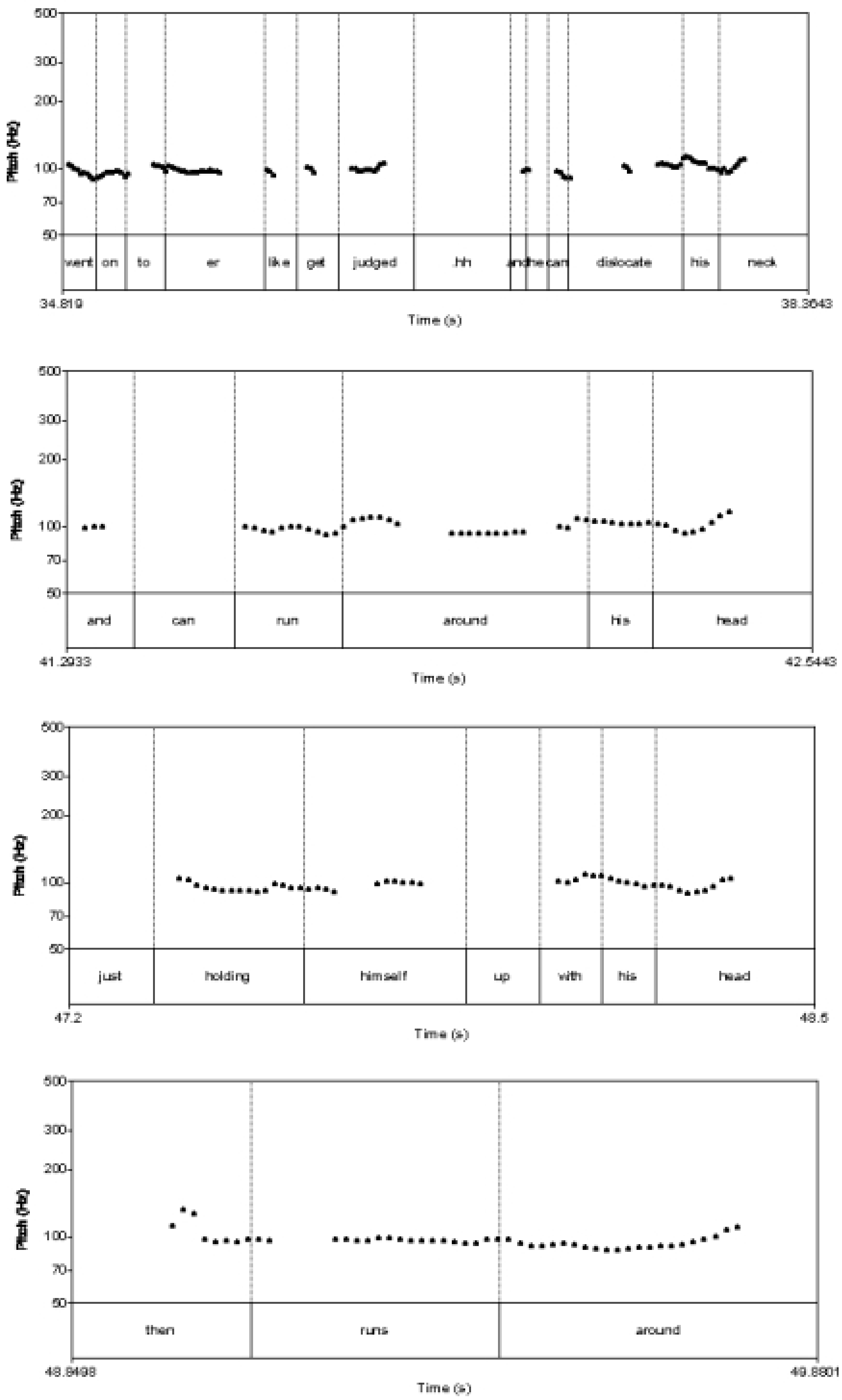

Figure 4.17: Pitch contours for example (11)

4.2.3.2 Place of articulation and transition relevance

Words ending in *voiceless velar plosives* (K^h rhymes) are subject to another form of variation, namely the place of the final articulation. The wide range of variation at this place has not gone unnoticed in the literature. Watson (2007:61) mentions the fronting of *velar plosives* "in the vicinity of front vowels", although Knowles (1973:326) attests [bux̟] for "book". Honeybone (2001a:240) writes that the preceding vowel affects the place of articulation in a process of optional assimilation. Watson's data show that there is a gender distinction in the place of articulation used, with men producing backer articulations than women (2007:176), even after front vowels. This section explores the place of articulation in K^h rhymes with reference to their place in a turn.

From the word-fit data, a range of places of articulation were observed, from uvular to palatal. The most variation was seen following backer vowels, however, with the articulations after front vowels being consistently front. The conversational data provided a different view. Nine tokens of words ending in K^h rhymes in TRP position were analysed[8]. Each of the rhymes was produced with OCVT, and was followed by speaker change. Table 4.7 shows the vowels and places attested, including whether the speaker was male or female.

	[i]	[ɪ]	[ai]	[ei]	[ɛ]	[ɜ]	[oʊ]
Male	[x̟]		[χ͡x̟]	[χ͡x̟]	[χ͡x̟]	[χ͡x̟]	[x]
Female	[ç]	[k̟]		[ç]			

Table 4.7: Places of articulation in K^h rhymes following different vowels

Despite the limited amount of data, three observations can be made. Firstly, all of the articulations are relatively fronted. Even when there is some vibration of the uvula, the resonance of the friction still sounds forward. This would suggest that fronted velar articulations go hand-in-hand with OCVT as one of the components of doing transition relevance. Secondly, the data confirm Watson's (2007:176) claim that men produce backer variants. In the two tokens where a comparison can be made, the male speaker has a more back articulation. Thirdly, it appears that uvular scrape is also a feature of male speech.

While there are gender differences in the place of articulation, both male and female speakers seem to tend towards relatively front articulations at TRPs that end in OCVT and are followed by speaker change. More data would be needed to confirm this claim, however, both at places where is and isn't relevant.

[8]None of the tokens were of "lyke", as it is difficult to tell when this is a TRP or not.

4.2.3.3 Summary

This section has shown that projected TRPs which are oriented to as being transition relevant share the phonetic characteristics outlined in section 4.2.2 for the question-answer sequences. Finishing on an OCVT belongs to the prosodic completion of a turn. Final pitch rises have also been attested at the TRPs in this section.

However, it remains to be seen if these features differ in projected TRPs which are not oriented to as transition relevant. The difficulty with this observation is the problem outlined above – when no speaker change occurs, this is not necessarily because transition was not relevant. The following section attempts to shed some light on the practices used to indicate that a projected TRP is not transition relevant in Liverpool English conversation.

4.2.3.4 Instances of no speaker change with no break

Having established that there are certain resources available to speakers to signal transition relevance, this section examines projected TRPs where transition relevance can be said to be blocked, and where there is no break between the end of one TCU and the beginning of another. The examples discussed show that the resources used by speakers to block transition relevance are best described in terms what they do *not* do. There is no tendency to an OCVT – closures are generally unreleased, for example. Shortness of the final sound and phonetic features which are not exponents of the final *plosive* also seems to contribute to the blocking of a TRP.

In example (12), there is a projected TRP at “bag” in line 4. Speaker A has come to the syntactic and pragmatic end of her turn. However, the projected TRP is not oriented to as being change relevant by either speaker. Speaker A takes an inbreath and continues talking, and speaker B does not take a turn. The phonetics of the final word in the TCU are different to words at TRPs in the previous section – the closure in “bag” in line 4 is not released.

(12)	1	A	.hh and like they us- they never used to have wrappers on
	2		[did they]
	3	B	[no .hh]
	4 →	A	just in like a bag .hh I remember that (0.4) I don’t know
			[pag˺]
	5		why she got them (laughs)

As well as held closures, there are also some junctural features which are used as a resource to block change relevance at projected TRPs. In example (13), there is a projected TRP in line 1 at “ahead”. The pitch on “ahead” is low and falling, and there is creak on the vowel (figure 4.18). At other places in the conversation, “go ahead” is overwhelmingly oriented to as transition relevant, and is usually produced with released final closure. In this example, however, there is only one closure made over the junction between “ahead” and “get”, and this is velar. More talk is projected by this closure, because it is not a part of the phonetics of “ahead”.

(13) 1 → B Go ahead get your boobs out
[ɛ̰gɛ̰ʔ]
2 A (laughs) shut up (laughs) it's only like five
3 weeks over five weeks to go .hh

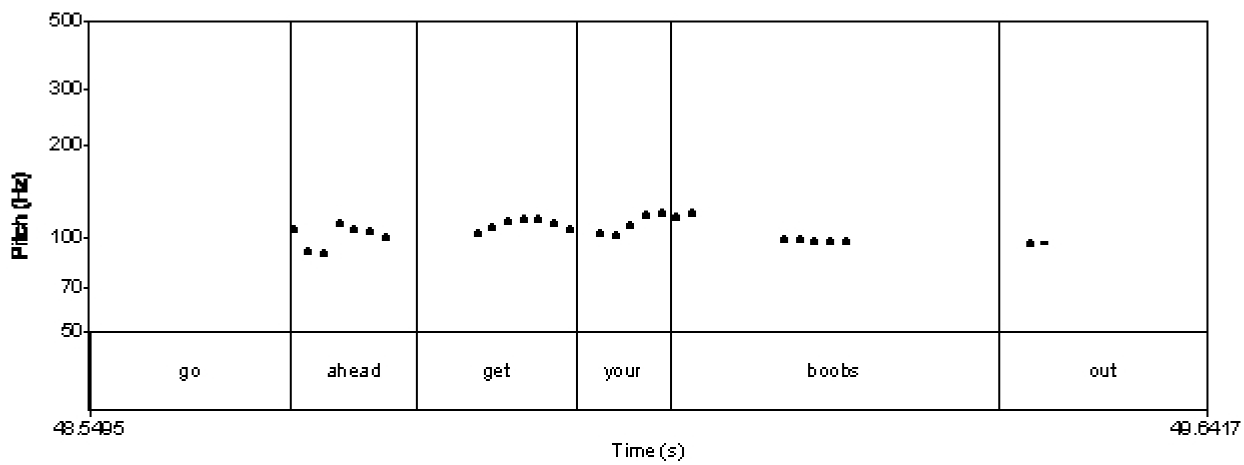

Figure 4.18: Pitch contour for example (13)

A similar example of phonetics spanning a TRP is shown in example (14). In line 3, speaker A is rejecting speaker B's assertion that his injury isn't as deep as speaker A thought. At "deep" in line 3, the turn could be syntactically and pragmatically complete. However, "deep" is produced on a level tone which is quite high in the speaker's range (figure 4.19). In her work on German conversation, Selting (2000:508) identifies a level tone at a TRP as a turn-holding mechanism. Although a resource in one language can't be applied directly to another language, dialect or context, it may be that the level tone here is also contributing to the projected TRP being non change relevant. The articulation of the word "deep" is also somewhat faster than the other two turn-final productions of the word in the data, being 0.25s long compared to 0.5s and 0.4s. Such localised tempo increases are features of "abrupt-joins" (Local and Walker 2004), where speakers pre-empt a TRP and secure a new turn. In addition, the labiodental articulation over "deep that's" is not an exponent of the final *plosive* in "deep". The combination of the possibly incomplete intonation, the speed, and the phonetics of the juncture between the two TCUs is oriented to as being non transition relevant. Speaker A continues, and speaker B does not come in.

(14)	1	A	it isn't it's- it's like you said it was four centimetres deep
	2	B	four centimetres long two and a half deep
	3 →	A	so- that's still like loads deep that's like still touching your [tsii̤f̆as]
	4		[spine or something]
	5	B	[(inc)'s gone topless]

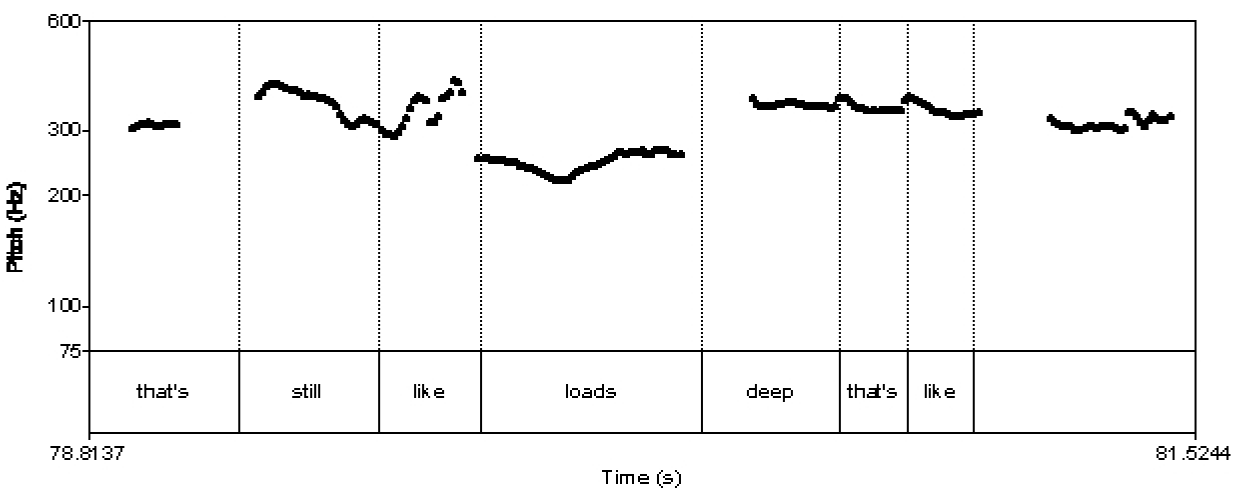

Figure 4.19: Pitch contour for example (14)

Even if a closure is released into friction, the place of the friction with reference to the closure appears to be important for coparticipants. In example (15), speaker A is talking about a hotel they have booked. In line 6, she produces "like" with an open articulation. However, this is not oriented to as transition relevant, either because she is in a longer turn about the hotel, or because speaker B does not provide a completion for her. At "dump" in line 6, speaker A is at a place of syntactic and pragmatic completion. However, the friction she produces on the release of the final closure in "dump" is not homorganic to the closure. Instead of being labial, it is alveolar, an exponent of the following word, "to". As speaker B does not take a turn, and speaker A continues talking, non-homorganic release can be said to block a TRP.

(15)	1	A	an it was right by a looked like a swamp
	2		did you see it like .hh
	3	B	that's ours
	4	A	it's not
	5	B	it is when we google earthed it
	6 →	A	I know it's a bit of a like (0.2) dump to
			[laix] [dʊmpsə]
	7		the right of it isn't it .hh but like .hh that by that
	8		caribbean princess it's erm (2.1) you know like (1.5)
	9		oh I d- can't even explain it .hh where you

The instances discussed in this section suggest that speakers orient to projected TRPs as being non-transition relevant not only when there is syntactic or pragmatic incompleteness, but also when there is no final OCVT, or when the exponents of the final *plosive* are short. If there is closure, it is either unreleased, or is released directly into the first sound of the following TCU.

4.2.3.5 Summary

These few examples have demonstrated that the variation in turn-final *plosives* has a role to play in marking transition relevance. Both speakers orient to the sharing of phonetic exponents at the junction of two TCUs to mean that change is not relevant. The current speaker continues, and the other speaker does not start speaking. The release of a closure into the next sound instead of into local or glottal friction is also oriented to as the indication that the turn is not complete.

The examples in this section were instances where the current speaker did not pause between the two TCUs. Although there were many examples in the data where there was no speaker change at a projected TRP followed by a break, the use of analysing such instances is minimal. The only work that could be done is guesswork (albeit educated) about whether transition was blocked or just not oriented to.

4.2.4 Conclusions

From the data examined here it seems that the resources available to speakers of Liverpool English are not far removed from those reported in other varieties. OCVT has been noted as a prosody of turn finality by Walker (2004), and closure holding has been recognised as a turn-holding mechanism (e.g. Ogden 2001b, Local and Kelly 1986), as has fast speech towards TRPs (Local and Walker 2004).

The difference for speakers of Liverpool English seems to be in the variety of possibilities they have available to finish with an OCVT. As well as releasing final closures, they can expone *plosives* as strictures of close approximation. The option (in certain words) to finish *plosive*-final words with a (voiceless) vowel is also available to them. Thus, transition relevance in Liverpool English seems to pattern with transition relevance in other varieties, but is subject to more variation, especially when it comes to promoting speaker change.

Chapter 5

Representation

5.1 Introduction

The previous two sections have shown that there is considerable variation in Liverpool English, and that certain variants have interactional functions. This section proposes a model for the observed variation. An important feature of this model is that it is non-process based. In contrast to other studies which have examined this phenomenon, no one form is taken as being original, and there is therefore no derivation. Instead, the possible phonetic realisations are presented as a set of choices at a place in structure, the choice of exponent being conditioned by interactional, lexical and social factors. It is entirely possible that variation which is socially constrained also has an interactional function (or vice-versa). As Local (2003:323) notes, "each part of the speech signal relates to several functions simultaneously".

5.2 The structure

The structure to be modelled is *plosive*-final rhymes at possible transition relevance points. There are three different shapes for these rhymes. The structures for CV-Plos. and CVC-Plos. rhymes are repeated from section 4.1 in figures 5.1 and 5.2. Although the nodes of the trees are written as C, V, and Plos., this does not mean that they are segments. Rather, they are phonematic units, which represent systems of contrast at places in structure. Their exponents may have different timings over the structure.

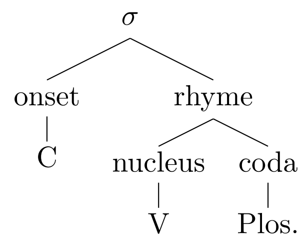

Figure 5.1: CV-Plos. words

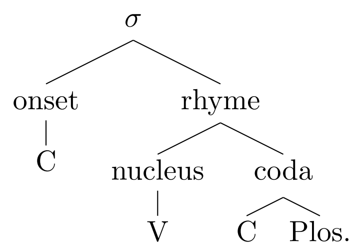

Figure 5.2: CVC-Plos. words

CVN-Plos. words are treated separately from CVC-Plos. words because *nasal consonants* are not treated as having phonematic unit status in the way that other penultimate *consonants* have in this analysis. This is for two reasons, reiterated here from section 4.1. Firstly, the exponents of a *nasal* are predictable at this place in structure. As Whitley (Simpson 2005:80) notes, the NP system is a linked one – any nasal occlusion is made homorganically to the articulation for the Plos. system. Secondly, nasality does not have a place in structure so much as a time. Nasality in CVN-Plos. rhymes can start on the vowel and is present during a period of occlusion made before the articulation at Plos.

For these reasons, CVN-Plos. words will be modelled as shown in figure 5.3. The nasality is treated as a prosody of the rhyme, shown by $^{\mathrm{n}}$. The exponent of this prosody is nasal airflow which can begin during the vowel articulation and continues during a closure made homorganically to the articulation made at Plos. The velum is then raised for the articulation(s) at Plos.

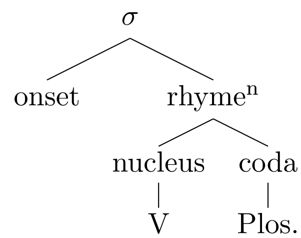

Figure 5.3: The nasal prosody

To clarify that CV-Plos. words cannot have any nasal exponents, they will be represented as shown in figure 5.4.

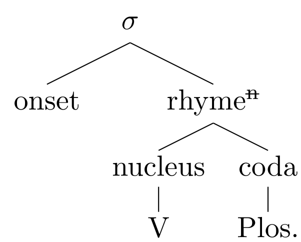

Figure 5.4: CV-Plos. words

The following sections build on this general structure to incorporate the phonetic and interactional details discussed above.

5.2.1 Voicing

As mentioned in section 4.1, there are two classes of words: words which can have a voiceless period on the vowel (or lateral or nasal, if present), and those which can't. The data also show that the exponents of Plos. can only be voiced in words which cannot have such a voiceless portion[1].

Eileen Whitley's phonology of English (Simpson 2005) treats voicing in accented nominal monosyllables which end in *plosives* as prosodic, a stance shared by this analysis. An adaptation of her representation for this prosody is shown in figures 5.5 and 5.6, with voicing being a prosody of the rhyme.

[1]Obviously, there are times when *voiceless plosives* are voiced. Such instances will be discussed later.

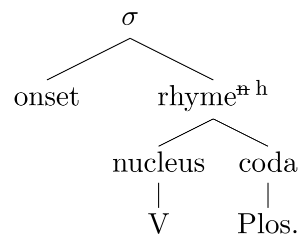

Figure 5.5: ^{h} words

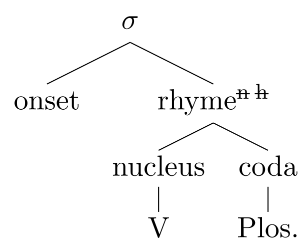

Figure 5.6: $^{\cancel{h}}$ words

The exponents of ^{h} can be considered as “voicelessness”. They include lack of vocal fold vibration, definitely during the articulation at Plos., and possibly over the whole rhyme. They can also include glottal closure with any closure made for Plos.[2], and possible creaky voice on the vowel or any penultimate consonants. The exponents of $^{\cancel{h}}$ are best termed as “voicing”. They include vocal fold vibration, definitely over any vowel, lateral or nasal articulations, and possibly during the articulation for Plos. Whitley (Simpson 2005:71) also adds the prolongation of the vowel to the exponents of $^{\cancel{h}}$.

5.2.1.1 The *voice* and *nasal* prosodies

The two prosodies on the rhyme (the *voice* and *nasal* prosodies) have a lexical function. They distinguish word pairs such as “bit∼bid” ($^{\cancel{n},h}\sim^{\cancel{n},\cancel{h}}$), “rap∼ramp” ($^{\cancel{n},h}\sim^{n,h}$), and “sent∼send” ($^{\cancel{n},h}\sim^{n,\cancel{h}}$).

The interaction of the two rhyme prosodies places restrictions on the places of articulation possible at Plos. Most importantly, the combination of nasality and voicing (^{n} and $^{\cancel{h}}$) means that only {T,K} are possible for the Plos. articulation (because there are no English words which end with [mb]).

There is also a distinction between *voiced velar* and *voiceless velar* rhymes with a *nasal*

[2] In words which end in a *voiceless alveolar plosive* (T^{h} words), a glottal closure may be made even when the exponents of Plos. are zero, for example in “what” realised as [wɒʔ].

($K^{h,n}$ and $K^{\cancel{h},n}$). *Voiced velar* rhymes with a *nasal* ($K^{n,\cancel{h}}$) are not necessarily followed by a period where the velum is raised (there is no contrast between [ŋ] and [ŋg]). *Voiceless velar* rhymes with a *nasal* ($K^{n,h}$) are always followed by a period where the velum is raised for the articulation at Plos ([ŋk]).

5.2.2 Voice quality

As well as the *voiced/voiceless* distinction, section 4.1 also noted the progression of voice quality from modal voice, to creak, to breathy voice, and then to voicelessness, if the word has a ^{h} rhyme. This progression of voice quality can span the whole final word, and is used as a demarcation of the turn – it signals turn ending. It is therefore modelled as a prosody of the turn, whose exponents are timed with the final word. Figure 5.7 shows the prosody ^{q}. The square brackets represent the turn, of which only the final syllable is shown.

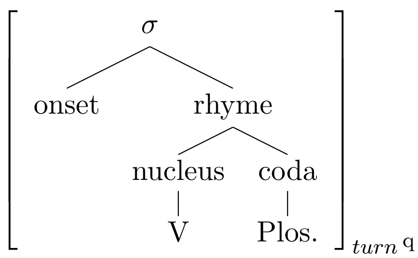

Figure 5.7: The voice quality prosody

The exponents of ^{q} are a sequence of the following voice-quality types on the final word of the turn: modal vocal fold vibration, creaky vocal fold vibration[3], and breathy voice. Not all of these will necessarily happen, but if more than one voice quality occurs over the word, it will be in this order. Any voicelessness exponed by ^{h} occurs as the last change of voice quality. By positing this prosody, the movements of the vocal tract and the voice quality are kept separate. This is an advantage, since they are separately controllable. The voice quality can be seen as being overlaid onto the vocal tract articulations.

[3] This is not the same phenomenon as exponed by ^{h}. The exponents of ^{h} have a lexical function, whereas the exponents of ^{q} have an interactional function. In this way, even $^{\cancel{h}}$ rhymes can have creaky voice. This, however, is a part of ^{q}. When ^{h} rhymes have creaky voice, it may not be obvious whether this is the exponent of ^{h} or ^{q}.

5.3 Final variation

Having modelled nasality, voicing and voice quality, this section deals with the final variation at this place in structure. The first task is to identify what remains stable at this place – in this case, the place of articulation, which determines the meaning of the word (e.g. "silt∼silk").

For both ^{h} and $^{\not{h}}$ words, there is a three-term distinction at Plos. (e.g. pip∼pit∼pick and rib∼rid∼rig). Although Whitley (Simpson 2005:71) treats these as being direct terms of the phonematic unit, this analysis posits a prosody at Plos., which can be termed a prosody of place. The symbol $^{\pi}$ represents the prosodic system whose phonological terms are {P,T,K}. These stand for *labial, apical* and *dorsal*, and are shown in in figure 5.8.

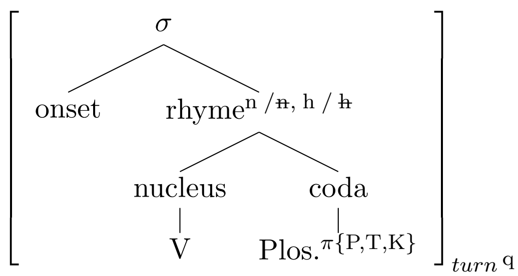

Figure 5.8: Terms of $^{\pi}$

The phonetic exponents of {P,T,K} are as follows:

P Labiality

T Apicality (and ∅ in *voiceless* words)

K Dorsality, ranging from uvularity to palatality

The reason for having a prosody of place here is so that the prosody can be valid for any *nasal consonants* as well as the articulation at Plos. The prosody $^{\pi}$ has a lexical function and specifies the place of articulation for Plos. and for any *nasal* preceding it, therefore determining the place of articulation for nP sequences as a whole. Note, however, that the place of the nasal can never be ∅; even if the exponent of T in a *voiceless nasal* word (such as "sent") is ∅, the nasal still requires a place of articulation, and so takes "apicality".

The variation at Plos. is due to the timing of the articulators and the configuration of the vocal tract. However, section 4.2 showed that different timings of the articulators have different functions in conversation. It was also demonstrated that participants know where they are in a larger structure (i.e. at a TRP) because of the variants used at this place, and the participants' orientation to them.

In FPA, phonetic features whose presence alerts speakers to a place in structure are also treated as prosodies, an oft-cited example being the glottal stop in German (Ogden 2001a). The variation at this point is therefore handled under the turn-prosody ^{v}, as shown in figure 5.9.

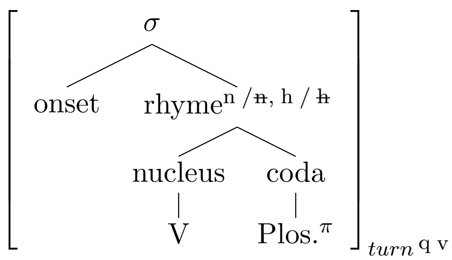

Figure 5.9: The prosody v

The prosody ^{v} is a prosody of turn-ending, like aspiration in Tyneside (Local 2003). Like the voice quality prosody ^{q}, it is only applicable on the last syllable (more specifically the final coda) of the turn. It has two terms: {change relevance, non change relevance}. Another way of thinking of this is in terms of junction – whether junction is being made with nothing, or with something. Junction will be referred to later, but for now, more insights from the conversation analysis can be included by using the change relevance distinction. Each term expones certain configurations of the articulators. Change relevance can be summed up as OCVT, but non change relevance is harder to define in terms of a phonetic shape. Generally, the exponents of change relevance and non change relevance can be stated thus:

Change relevance released closure at Plos./close approximation at Plos./neither oral stricture nor glottal closure at Plos.

Non change relevance unreleased closure at Plos./stricture at a place other than specified by $^{\pi}$/ rhoticity[4]/shortness of exponent

As discussed in section 4.2, "change relevance" also has the exponent "final release of low-pressure glottal friction". This happens after any other exponents of change relevance.

The next section presents the exponents for the terms of ^{v}.

[4]Although no examples have been discussed, the phenomenon by which an alveolar approximant or tap is produced in connected speech (e.g. gerroff) is well known. Its presence signifies that more is to come, and is therefore non-change relevant.

5.4 Exponents of $^{\vee}$

As section 4.1 showed, not all variants are possible for all word shapes. The important point, however, is that within the phonetic variation possible in any given word, each of the two terms of $^{\vee}$ will be represented. There will always be at least one option to promote speaker change and one to block it.

The following tables display the exponents of change relevance for each word shape. The exponents of non change relevance always include a held closure, but their other possibilities are so varied (because they are often dependent on the following sound) that they will not be represented here. Instead, they will be discussed later.

The production of final glottal friction is likewise not shown, because it is applicable to all words.

5.4.1 $\mathrm{P}^{\cancel{h}}$ rhymes

Table 5.1 shows the exponents of change relevance in $\mathrm{P}^{\cancel{h}}$ (*voiced labial*) rhymes.

Word shape	Example	Change relevant
CV-Plos.	rib	Audibly released closure/closure released with aspiration/ closure released into close approximation/close approximation ([p, b, p^{h}, pɸ, β])
CVL-Plos.	bulb	Audibly released closure/closure released into close approximation ([p, pɸ])

Table 5.1: Exponents of $^{\mathrm{v}}$ for $\mathrm{P}^{\cancel{h}}$ rhymes

An example of the exponency for change relevant "rib" (produced with an OCVT) could be [ɹɪpɸ]. This is shown in figure 5.10.

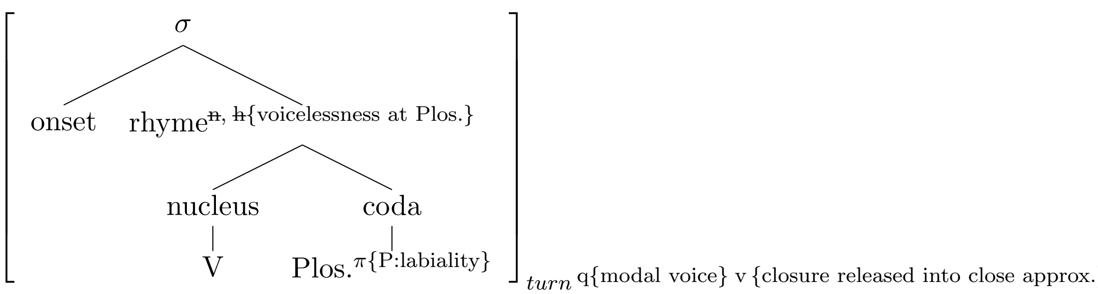

Figure 5.10: Exponency for "rib"

5.4.2 $\mathrm{T}^{\not{h}}$ rhymes

The exponency of change relevance for $\mathrm{T}^{\not{h}}$ rhymes is shown in table 5.2.

Word shape	Example	Change relevant
CV-Plos.	dad	Audibly released closure/closure with aspirate release/ closure released into close approximation/close approximation ([t, t^h, ts, s, z])
CVN-Plos.	send	Audibly released closure/closure released into close approximation ([d, t, ts, ds])
CVL-Plos.	old	Audibly released closure/closure released into close approximation/ close approximation ([d, t, ts, s])

Table 5.2: Exponents of ^{v} for $\mathrm{T}^{\not{h}}$ rhymes

Figure 5.11 gives an example of exponency for "send", pronounced as [sɛɛ̃n̰d]. Note that the creaky voice is an exponent of ^{q}, as its function is interactional, and the exponents of $^{\not{h}}$ do not include creaky voice.

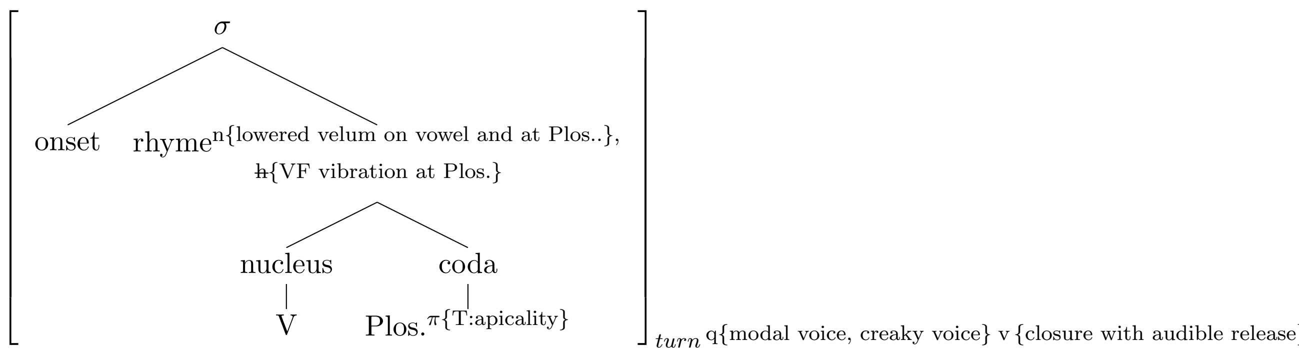

Figure 5.11: Exponency for "send"

5.4.3 $K^{\hbar}$ rhymes

In table 5.3, the exponents of change relevance for $K^{\hbar}$ rhymes are shown. Figure 5.12 shows the exponency for "pig" produced [pɪ̤x].

Word shape	Example	Change relevant
CV-Plos.	pig	Audibly released closure/closure released into close approximation/ close approximation ([g, k, gx, kx, x])
CVN-Plos.	bang	Audibly released closure/closure released into close approximation ([k, kx])

Table 5.3: Exponents of $^{\text{v}}$ for $K^{\hbar}$ rhymes

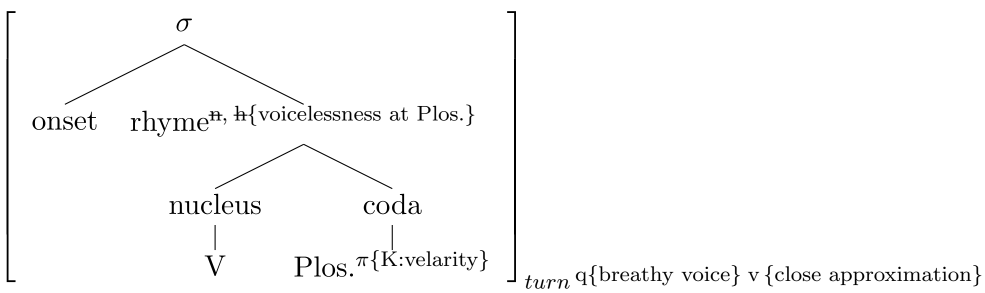

Figure 5.12: Exponency for "pig"

5.4.4 P^{h} rhymes

Table 5.4 shows the exponents for change relevance for P^{h} rhymes. Figure 5.13 exemplifies the exponency of “lisp” ([lɪɪ̥sɸ]).

Word shape	Example	Change relevant
CV-Plos.	rip	Audibly released closure/closure with aspirate release/ closure released into close approximation/close approximation ([p, p^{h}, pɸ, ɸ])
CVN-Plos.	lump	Audibly released closure/closure released into close approximation ([p, pɸ])
CVL-Plos.	gulp	Audibly released closure/closure released into close approximation/ close approximation ([p, pɸ, ɸ])
CVS-Plos.	lisp	Audibly released closure/close approximation ([p, ɸ])

Table 5.4: Exponents of $^{\mathrm{v}}$ for P^{h} rhymes

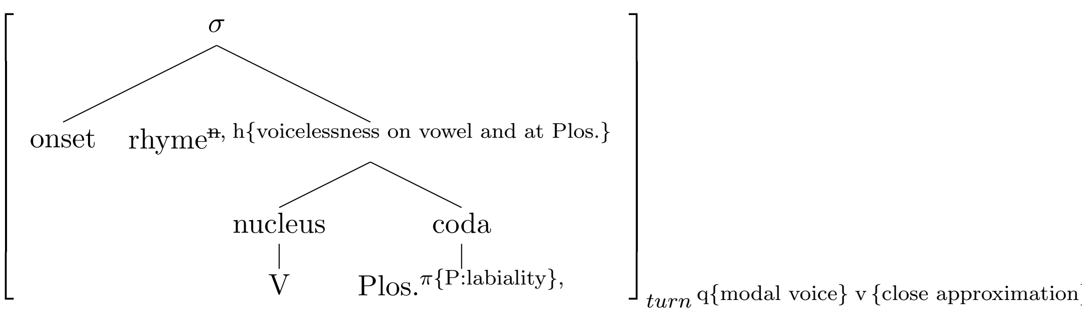

Figure 5.13: Exponency for “lisp”

5.4.5 $\mathbf{T^h}$ rhymes

Table 5.5 shows the exponency statement for $\mathrm{T^h}$ rhymes.

Word shape	Example	Change relevant
CV-Plos.	what	Audibly released closure/ ∅/ closure released into close approximation/close approximation ([t, ∅, ts, s,])
CVN-Plos.	sent	Audibly released closure/closure released into close approximation/ close approximation ([t, ts, s])
CVL-Plos.	belt	Audibly released closure/closure released into close approximation/ close approximation ([t, ts, s])
CVS-Plos.	chest	Audibly released closure/closure released into close approximation/ close approximation ([t, ts, s])
CVF-Plos.	daft	Audibly released closure/closure released into close approximation/ close approximation ([t, ts, s])
CVK-Plos	fact	Audibly released closure/closure released into close approximation/ close approximation ([t, ts, s])
CVP-Plos.	rapt	Audibly released closure/closure released into close approximation/ close approximation ([t, ts, s])

Table 5.5: Exponents of $^{\mathrm{v}}$ for $\mathrm{T^h}$ rhymes

$\mathrm{T^h}$ rhymes are those where lack of final stricture is most attested. Figure 5.14 gives an example of how the model represents this, for the pronunciation [wɒɒ̤̥] of "what".

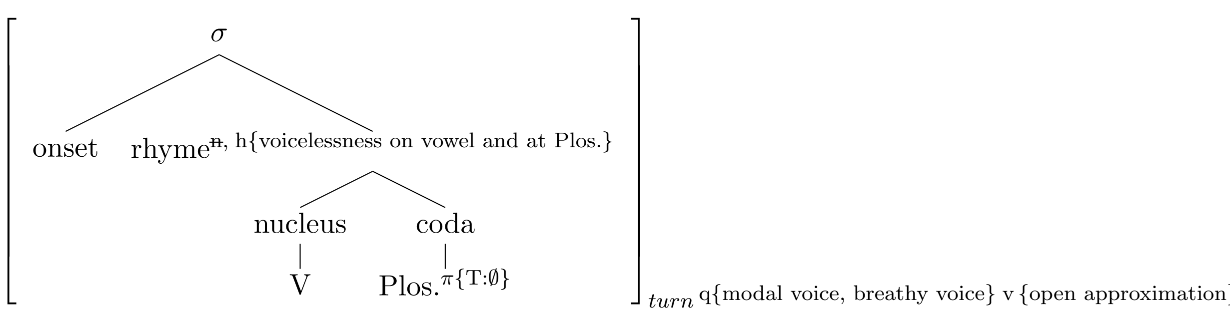

Figure 5.14: Exponency for "what"

Figure 5.15 shows how final glottal friction is handled, for the word “height” articulated [haɪsh].

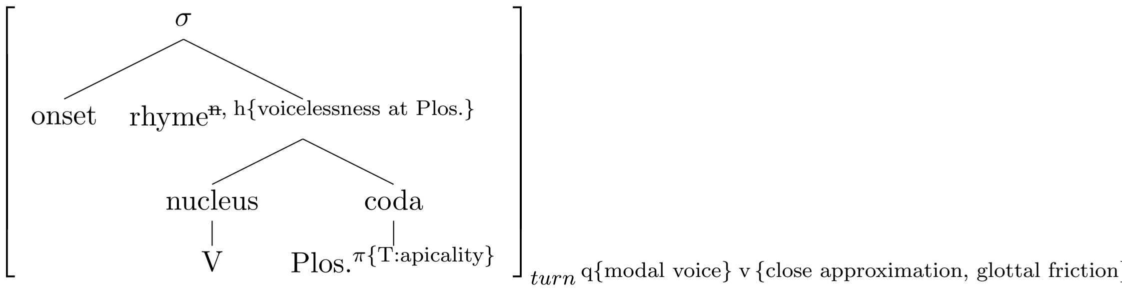

Figure 5.15: Exponency for “height”

An example of glottal closure in the word “sent” ([sɛnʔh]) is shown in figure 5.16

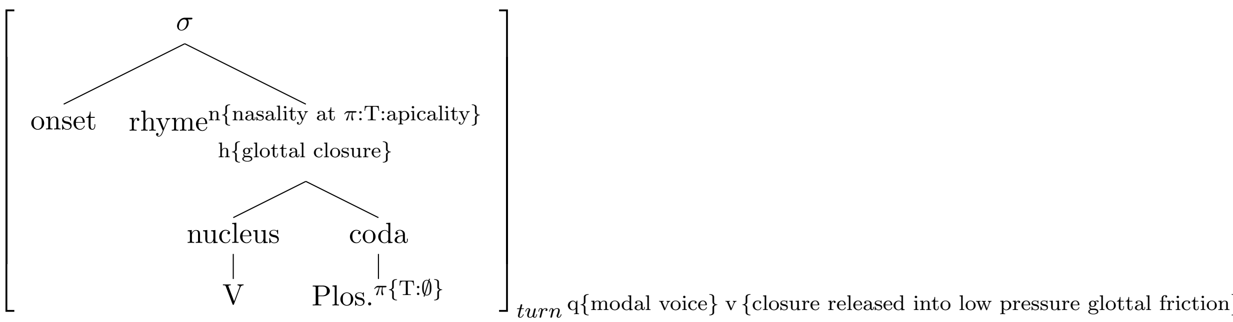

Figure 5.16: Exponency for “sent” with glottal closure

5.4.6 K$^{\mathrm{h}}$ rhymes

Table 5.6 and figure 5.17 show the exponents of change relevance for K$^{\mathrm{h}}$ rhymes, and an example of this exponency for "sick" produced [sɪx̟]. As mentioned in section 4.2, the exponents of change relevance for K$^{\mathrm{h}}$ rhymes also include relative frontness of articulation. The gender differences mentioned previously are not dealt with here.

Word shape	Example	Change relevant
CV-Plos.	sick	Audibly released closure/closure with aspirate release/ closure released into close approximation/close approximation ([k, k$^{\mathrm{h}}$, kx, x])
CVN-Plos.	rank	Audibly released closure/closure with aspirate release/ closure released into close approximation/close approximation ([k, k$^{\mathrm{h}}$, kx])
CVL-Plos.	silk	Audibly released closure/closure with aspirate release/ close approximation ([k, k$^{\mathrm{h}}$, x])
CVS-Plos.	ask	Audibly released closure/closure released into close approximation ([k, kx])

Table 5.6: Exponents of $^{\mathrm{v}}$ for K$^{\mathrm{h}}$ rhymes

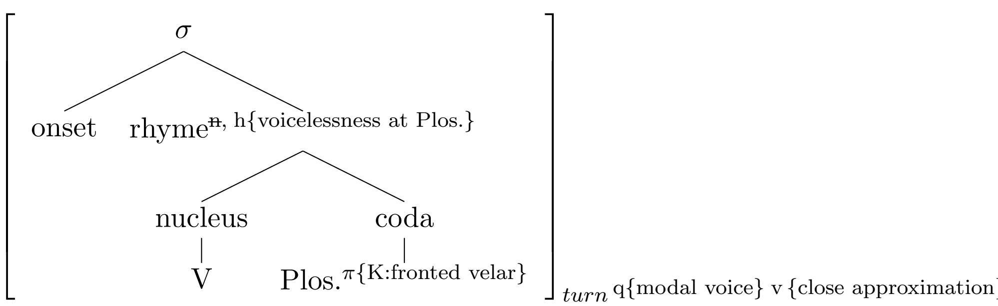

Figure 5.17: Exponency for "sick"

In some K$^{\mathrm{h}}$ rhymes, there may be a period of local friction *before* any closure is made. This is due to the movement of the articulators towards the closure, while voiceless airflow continues. So, for example in the token [saḁxk] ("sack"), the voicelessness exponed by $^{\mathrm{h}}$ continues while the articulators are moving towards making a closure at Plos. Sometimes, however, this friction is also attributable to the resonances of a voiceless vowel, such as in the token [bai(i̥/ç̊)ç] ("bike").

5.4.7 Exponents of not change relevant

As already mentioned, one of the ways of signalling non change relevance is with a held closure at Plos., for example as shown in figure 5.18, which shows a not change relevant token of "rip" ([ɹɪp˺]).

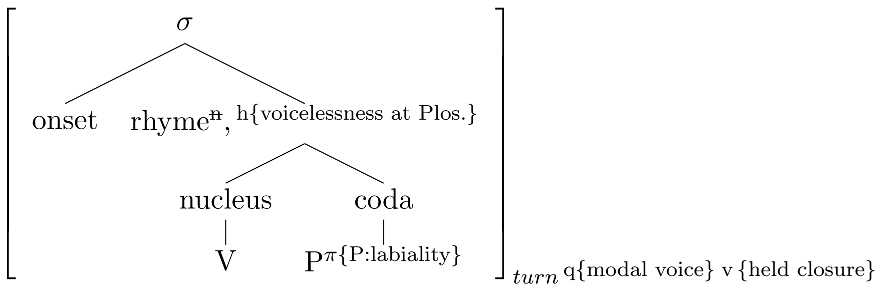

Figure 5.18: Exponency for non change relevant "rip"

The other exponent of "not change relevant" found in the data was described above as closure or friction at a place other than specified by the phonological exponent of π. One example of this in the conversation data discussed above was the production of "ahead" in example (13) with a final velar closure. The exponents of non change relevance also include the release of a closure into non-local oral friction. An example of this is "dump to" in example (15), where there was a final bilabial closure, which was released into alveolar friction.

There are bound to be other exponents of non change relevance, but because of the few instances in the data, they cannot be described here.

5.5 Predictions

As well as capturing the patterns in the data, the model proposed above also allows certain testable predictions to be made.

1. It is known that the exponents of *voiceless plosives* can sometimes be voiced in talk. Because phonological voicing is specified for the rhyme as a whole, any occurrence of voicing in the exponent of P must be a part of ^{v}. The prediction is that voicing in *voiceless plosives* at a TRP is relevant to turn taking, and is not the same phenomenon as the phonological voicing.

2. The presence of the voicing prosody on the rhyme can be tested. If native-speaker,

literate listeners are confronted with synthetic data of non-words such as [gaḁlk], and are asked to spell it, they should produce “galk”. For the phonetic form [galk], there should be a mix of “galk” and “galg”.

3. The voice quality progression may be present in other structures as a prosody of turn-ending.

4. Final low-pressure glottal friction should not be affected by social parameters. It may also be found at TRPs which end in *fricatives* or other sounds.

5. Despite any other constraints at work on the variation, a speaker will always have the resources to signal change relevance and non-change relevance.

6. The model proposed should be extendable to other structures (both other places in the word, and in the turn).

5.6 Conclusions

In contrast to previous work on the variability of final *plosives*, this section has modelled the phenomenon using a non-process based representation. In doing so, it has incorporated insights from conversation analysis to propose categories which are relevant to speakers, and which can condition the variation. One of the advantages of the model proposed is that it expones the phonetic forms parametrically, in an attempt to capture some of the features noted in the phonetics, such as voice quality. Another advantage is the polysystematicity in FPA, by which different systems can be set up for different parts of the grammar. This has meant that the present analysis didn’t have to (and shouldn’t have to) handle *plosives* at non-TRPs, or word-initial *plosives*. Polysystematicity also allows there to be different exponents for different structures and different *plosives*, such as the place of articulation for $\mathrm{K^h}$ words.

As well as accounting for the observations made from the data, the model also allows a “renewal of connection” to be made with the data, by predicting speaker behaviour and by being extensible to other structures. The model itself could also be extended by feeding what is known about social constraints into the exponency statement to refine the scope of the model.

Although this approach is different from other work done on Liverpool English, it has nevertheless proposed a viable account for the speakers' phonology, and has avoided the tricky concept of lenition. Further analyses could explore the behaviour of syllable-final *plosives* at other places in structure (for example, syllable-finally at points which are unequivocally not a TRP, or within a polysyllabic word), and could also look at syllable-initial *plosives*. The success of the analysis of these *plosives* suggests that FPA is a good alternative to modelling the variation in Liverpool English, and could well be used for further analyses.

Chapter 6

Conclusions

The main achievement of this dissertation is the new analysis based on the interactional function of variation. As well as being socially, segmentally and prosodically constrained, turn-final *plosive* variation in Liverpool English also has a role to play in conversation.

The model proposed for the variation has suggested how a speaker's phonology might model this variation. A move away from rules and processes means that the representation can deal with both punctual and longer-range exponents. Another advantage of the Firthian model is the separation of meaning from function – both lexical and interactional contrasts are captured, but there is no overlap between the two.

What the analysis has not done is provide an account of why variation is different at different places and in different structures. In some respects, the variation at a particular place in structure can be seen as belonging to that place in that structure, and therefore needs no explaining. This does not mean that the model has lost any predictive power, however. While it is unable to predict the degree of variation at any given place, it can make testable predictions about other aspects of the speakers' phonology in this structure. In addition, although the structure analysed here was turn-final, the same structure with could be applied to other places, such as turn-initial, or syllable-final. Different exponency statements would almost certainly be required, especially to deal with juncture between words, but the structure itself could be transferable.

Further work on this topic could address the interactional function of place of articulation of *voiceless dorsal plosives* in more depth to see if the claims made about frontness of articulation promoting transition relevance hold over larger amounts of data. The variation in TCU-initial *plosives* (either turn-initial or within a multi-unit turn) would also be a logical next step for analyses, with the particular aim of providing more research into how two TCUs are phonetically joined when the junction involves one or two *plosives*.

By considering a well-known variable from a new angle, this dissertation has shown the relevance of interactional categories to speakers when they use variants, and advocates FPA as a way of modelling phonology for this and other dialects.

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