The Accent of Egton

Developments in a North Yorkshire accent

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Abstract

How has the Egton accent developed over the past 30 years? The aim of this thesis is to analyse tokens from seven lexical sets, TRAP, BATH, START, FOOT, STRUT, FACE and GOAT in order to compare the findings with the results of earlier research in the same accent. The present study uses as starting point a study carried out by Hans Tidholm (Tidholm 1979) in the village of Egton in the Esk Valley in the late 1970's. The selection of features for further investigation in the present study was based on Tidholm's predictions on how the same features would stand the test of time.

13 informants in two age groups were interviewed for the present study, and the recordings were investigated using auditory and acoustic analysis. The development in the Egton accent and in the approach to studies of language variation and change are discussed in light of the changes in the science of sociolinguistics since the time of Tidholm's study, pointing out some of the challenges associated with this type of trend study.

The results show that there is large variation both in single speakers' pronunciations of words belonging to the same lexical sets, and between the different speakers' phonetic realisations of these sets. The findings from this study show that Tidholm seems to have been right about the direction of change for some of these features, while the development in other features may have changed direction, stopped or even reversed.

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1 Introduction

1.1 Aim and focus

Hans Tidholm studied the accent of Egton in North Yorkshire in detail in the late 1970's. He developed a complete phonetic inventory of the accent, based on data from written sources as well as his own recordings. He also presented his thoughts on which features were more likely to survive what he perceived to be the threat of influence from 'Standard English' or 'Received Pronunciation' (RP), and which were likely to succumb to this influence within a short period of time.

The data for the present study was collected approximately thirty years after the Tidholm data. The informants were found in Egton and surrounding villages, and the interviews of thirteen informants in two age groups were recorded. The aim of this study is to investigate how some of the sounds in the Egton accent have developed since the time of Tidholm. This thesis will focus on the quality of the vowels in TRAP, BATH and START, as well as that of FOOT and STRUT. The findings will be compared with those of Tidholm and the future he predicted for the same features, thus combining an apparent time and a real time approach.

The theoretical framework for the present study is to be found in the tradition of sociolinguistic studies and in theories of phonetic analysis and description of language sounds. The selected features will be analysed acoustically, using formant tracking and LPC analysis in Praat. In addition to the phonetic discussion and analysis, this thesis will present selected theories on how and why accents change, focusing mainly on accent levelling as a change force. It will also take into consideration various sociolinguistic factors such as age, gender, social networks and social class in the process of language change.

1.2 The Esk Valley and Egton area

The Esk Valley is situated in the North-East of North Yorkshire, and stretches from Whitby on the east coast to Commondale on the moors further to the west. The river Esk runs through the valley, and eventually ends up in Whitby. The village of Egton is situated about seven miles to the west of Whitby. Egton is situated on a slope which, when followed downhill for about one mile, leads to the smaller village of Egton Bridge. The railway from Middlesbrough to Whitby stops at Egton Bridge, and the village is a popular haven for tourists who stop here to rest their legs after days of wandering the moors. About 2.5 miles to the west further up the valley lies Glaisdale, another village on the Middlesbrough-Whitby line. 1.7 miles to the east of Egton Bridge lies Grosmont, which first grew up around the railway station where rock broken in the Esk Valley was transported to the sea. It was also a flourishing mining village from the mid 1800s, until the use of steel replaced iron in the 1880s. Today Grosmont is another popular spot for tourists who come in on the steam train from the village of Goathland, alias "Aidensfield", as fans of the TV-series "Heartbeat" know it.

This area of the Esk Valley is home to roughly 300 people. Traditionally the main occupations for the inhabitants of the valley were farming or mining, and even today farming is an important occupation in the area. There are also quite a few commuters who work in Middlesbrough and Whitby. In recent years there has been a development whereby non-locals have bought local houses. This has pushed the prices up too high for many young Egtoners to be able to buy homes and stay in the village. There is still a strong local feel to the area, but this is changing rapidly as members of the older generation disappear, and their houses are taken over by mostly middle-aged people who use them as holiday homes first and later move to the area when they retire.

2 Hans Tidholm's study of the dialect of Egton

In the late 1970's, the Swedish phonetician Hans Tidholm carried out a study of the Egton dialect, which was published in 1979. After having discarded his original aim, which was to describe the 'pure' dialect of Egton, Tidholm decided to compare the dialects of speakers of different ages in order to investigate how the Egton dialect seemed to be developing (Tidholm 1979: 10). Tidholm described the vowel and consonant phonemes of the Egton accent, and traced the development from the Northern Middle English vowels of the 14^{th} Century, thus displaying the origin of the phonemes. He also presented a predicted future for the Egton sound system based on changes in progress at the time of his study. These predictions form the basis for the selection of features that are investigated in the present study. This selection will be further discussed in 4.1 below.

2.1 Tidholm's informants

Tidholm interviewed 15 informants who represented three different age groups: five informants belonging to the old age group (83-69), four in the mid age group (66-50) and six in the young group (33-15). The informants were either born in Egton or in adjoining parishes, and they had lived most of their lives in Egton. He chose informants who were all above puberty, because "fundamental speech habits are in most cases firmly established by that age" (Tidholm 1979: 10). Based on observations made on his frequent visits to Egton over several years, Tidholm maintains that apart from two of the male informants in the mid and young groups, "the informants are representative of their respective age strata" (Tidholm 1979: 11). Tidholm did not include female informants in the old age group. This is unfortunate, because in his thesis he points to the role of women as innovators of language change. In both the mid (two male/two female) and the young (five male/one female) age groups he finds that the female informants "have often larger percentages of RP/StE tokens than the males of these groups" (Tidholm 1979: 11). It would have been interesting to know what the percentages would have been in the old age group.

Tidholm's study was chosen as starting-point for this thesis due to his thorough presentation of the accent based on interviews with 15 informants from different age groups. The oldest of Tidholm's informants was born in the late 1880s, while the youngest informant in this study was born in the late 1980s. In other words, what makes this thesis particularly interesting is that when combined, these two studies may give an impression of how the Egton accent has developed over the past century.

2.2 Tidholm's description of the Egton accent: short and long monophthongs

Tidholm's study gives a thorough description of the dialect of Egton, including phonology, morphology and syntax. The latter two fall outside of the scope of the present study, and will therefore not be included in the following discussion of Tidholm's findings. As neither diphthongs nor consonants are studied in the material for this thesis, his description of the phonemes belonging in these categories will also be omitted in the following discussion. In the discussion of the long monophthongs

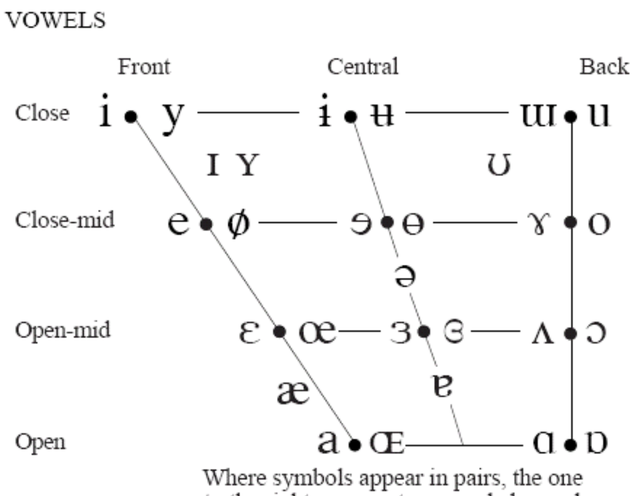
Tidholm includes /eː/ and /oː/. These phonemes correspond to the RP diphthongs in FACE, /eɪ/, and GOAT, /əʊ/.

Certain challenges in comparing older work with more recent studies should be pointed out. First of all, the theoretical framework for description of an accent and whatever changes may be going on there has developed since the late 1970's and until now. Wells' division of vowels into 'standard lexical sets' was published in *Accents of English 1-3* in 1982 (Wells 1982: 127-168), and provided a whole new framework for the description of vowels. 'Standard lexical sets' facilitate the grouping of words with corresponding pronunciations in RP and (a variety of) General American, and "make use of **keywords** intended to be unmistakable no matter what accent one says them in" (Wells 1982: xviii). At the time of Tidholm's study, however, there was no such straightforward way of characterising vowel phonemes. Tidholm characterises his vowels according to length, position in the vowel rectangle and monophthongal or diphthongal state. He lists the 'norm variants' as well as the allophonic 'variants', of each vowel. For each vowel he gives examples of words in which the vowel is used. He further gives the diachronic description of the origin of all the Egton vowels based on late Northern Middle English, approximately from the 14th century (Tidholm 1979: 43). In the following discussion of the Egton vowels, Wells' standard lexical sets will be used as labels in order to facilitate the organisation of the Egton vowel systems.

The other challenge is that of methodology. Tidholm does not provide a detailed description of the method used in his study. He explains his choice of informants and further describes them, giving information on each of them such as year and place of birth, occupation, parents' place of birth and occupation and so on. He also very briefly describes some challenges in the interview situation with regard to obtaining casual speech as opposed to formal speech. His interviews were purely conversational, and the only part repeated for each of the informants was "the contrastive words of minimal pairs", which "were presented to the informants with the question whether they were different words, or whether one of them was simply a repetition of the others" (Tidholm 1979: 13). He does not, however, provide a list of these minimal pairs. He does give minimal pairs after the presentation of each of the vowels in his description, and one may suppose that these were the minimal pairs used in the interviews. The fact that the minimal pairs used during the interview were suggestions based on “tape-recorded material and personal experience of the dialect on the spot” (Tidholm 1979: 13) could imply that the contents of this list was different from the final list.

The third challenge in comparing older and newer accent studies is linked to the phonetic description and transcription of the vowel qualities. Tidholm’s analysis of the vowel qualities in the Egton accent was purely auditory, possibly making the results more subjective than would have been the case if he had analysed at least parts of his results acoustically. This subjectivity is also present in his phonetic transcription of the sounds. His “phonetic notation is that of the IPA chart revised to 1947” (Tidholm 1979: ix) with the addition of his own diacritic symbols replacing some of the IPA ones. In the following description of the Egton sound system Tidholm’s distributional categories and phonemic symbols will be used.

The standard lexical set that applies for each of the sounds he describes will be included, as the phonetic discussion of the material gathered for the present study will make use of these labels. The phonetic symbols will be normalised so that they concur with the present IPA standard (revised to 2005):



2.2.1. The short vowels

Tidholm found that the Egton accent had a system of six short vowel phonemes:

A) /i/ (KIT)

B) /e/ (DRESS)

C) /a/ (TRAP, BATH)

D) /o/ (LOT)

E) /u/ (FOOT, STRUT)

F) /ə/ (see below)

The short vowel system of the Egton accent thus seems to agree with the five-vowel system described by Wells as typical of the midlands and the north of England (Wells 1982: 169), apart from the fact that /ə/ is included as an additional stressed vowel.

A) KIT (Norm Variant (NV) [ɪ])

At the time of Tidholm's study, /i/ was used in words belonging to the lexical set KIT, in words such as *tin* and *fist*. Tidholm pointed out that the short vowel /i/ was traditionally used in PRICE words such as *behind*, *bind* and *find*, a pronunciation which at the time of his study had been replaced by the diphthong /aɪ/. Certain DRESS words such as 'e*very*', 'g*et*' and '*n*e*ver*' were also pronounced with an /i/ traditionally, but this pronunciation was losing ground to /e/ at the time of Tidholm's study: "The percentage of /i/ has dropped from 47 % in age-group Old to 12.8 % in age-group Young. The female informants use only RP /e/. Most of the traditional forms of the Mid and Young age-groups are once again attributable to the males […]. There will probably be no traces of /i/ in a couple of generations" (Tidholm 1979: 54).

B) DRESS (NV [ɛ])

Tidholm found the pronunciation of words belonging to the lexical set DRESS to be /e/, and not a subject of change.

C) TRAP, BATH (NV [a])

Tidholm found that the /a/ traditionally used in TRAP- and BATH-words remained unchanged at the time of his study. The RP-influenced, fronted [æ] was "of rare occurrence", and "/a/ before /f/, /θ/, /s/ in words like staff, bath and fast is almost completely unaffected by RP /ɑː/" (Tidholm 1979: 57). He suggests that /a/ in BATH-words should resist RP-influence. Tidholm states that words such as '*calf*' and '*half*' were pronounced with an /oː/ in the traditional Egton accent. The phoneme used at the time of Tidholm's study was /aː/ (Tidholm 1979: 65).

D) LOT (NV [ɒ])

At the time of Tidholm's study, the pronunciation of words belonging to the lexical set LOT was with an /o/. He did not expect this pronunciation to change, as it is already the same as the RP pronunciation of these words. In addition, some words in lexical set NORTH (e.g. '*horse*') are said to be pronounced with /o/ (Tidholm 1979: 21).

E) STRUT, FOOT (NV [u] / [ʊ])

Tidholm found that the traditional /u/ in STRUT was "undergoing a lowering and centralizing process owing to influence from RP /ʌ/" (Tidholm 1979: 72). Although he points to the fact that /u/ was still the most common pronunciation, he maintains that especially [ə] seemed to be taking over. The female informants have rather high percentages of [ə]: Mid 36 % and Young 50 %. The male informants in age group Mid have 3% and those in age group Young have 24 %. Still, Tidholm believes that the traditional /u/ will remain in use for several generations.

The vowel in FOOT was traditionally pronounced with a centring diphthong, /ɪə/. This quality has been replaced with /u/ in '*foot*'. Tidholm states that other FOOT-words originally pronounced with an /uː/ or /iu/ were pronounced with an /u/ at the time of his study (Tidholm 1979: 95).

F) /ə/ (NV [ə])

As mentioned above, the addition of a sixth short stressed vowel is the only difference between Wells' five-vowel system and the system of short vowels described by

Tidholm. According to Tidholm, /ə/ is found in both stressed and unstressed position. In stressed position it is:

1) “a compromise between RP /əː/ and traditional /o/ in e.g. thirty”,

2) “a compromise between RP /ʌ/ and traditional /u/ in e.g. summer” (Tidholm 1979: 24).

However, Tidholm does not provide evidence that this sound actually has phonemic status. In the case of 1), it seems that /ə/ occurs as a positional allophone before historical /r/ or before fortis consonants in words such as ‘thirty’, ‘thirteen’, ‘first’, ‘church’, ‘worth’ and ‘work’, which are the only examples given of this sound in stressed position where RP has /ɜː/. Tidholm gives the minimal pair ‘first’ vs ‘fast’ /fəst/ vs /fast/ as an example of this central vowel in stressed position. Wells supports Tidholm’s inclusion of an additional short vowel in 1). He reports that in some traditional Yorkshire dialects “SED shows [kəs] as the most widespread form for *curse (cuss)*” (Wells 1982: 356). It may be that this applies to the Egton accent as well, or that it did to the traditional accent.

Regarding Tidholm’s 2), Wells points to the use of /ə/ as an intermediate, perhaps RP-influenced form in STRUT-words in northern ‘near RP’ accents as quite frequent (Wells 1982: 352). However, unless e.g. ‘*look*’ and ‘*luck*’ are distinguished, this schwa would be described as a free variant allophone of /ʊ/ rather than a phoneme in its own right. The minimal pair provided by Tidholm (‘love’ vs ‘live’ /ləv/ vs /lɪv/) does not prove the phonemic status of /ə/ in stressed position. An additional point made by Wells may be worth noting: he states that for accents “where the traditional vowel system already includes this /ə/, the task of ‘improving’ one’s accent by incorporating a FOOT-STRUT Split becomes one of transferring certain /ʊ/ words to /ə/, rather than one of introducing a completely new stressed-vowel quality into the system” (Wells 1982: 357). This will be kept in mind in the analysis of FOOT and STRUT in Ch. 4 below.

2.2.2. The long monophthongs

The Egton accent had six long vowel phonemes.

A) /iː/ (FLEECE)

B) /eː/ (FACE)

C) /aː/ (START)

D) /oː/ (GOAT)

E) /uː/ (GOOSE)

F) /əː/ (NURSE).

The Egton accent thus has two additional long vowels compared to RP, /eː/ and /oː/. This agrees with Wells' description of northern accents pronunciation of lexical sets FACE and GOAT with a long monophthong. Although the norm variants of FLEECE and GOOSE are realised as glides, Tidholm lists them among the long monophthongs due to the fact that "the distance they cover, from starting point to [i] or [u], is shorter, and hence more monophthongal, than that of the "genuine" diphthongs" (Tidholm 1979: 25).

G) FLEECE (NV [ɪi])

The /iː/ in the Egton accent was traditionally used in words such as '*street'*, which was still the case at the time of Tidholm's study. Most of his informants also used /iː/ in some of the words traditionally pronounced with the centring diphthong /ɪə/, such as '*clean'*, '*Easter'* and '*meat'* (Tidholm 1979: 25).

H) FACE (NV [ɛː])

Words such as '*day*' and '*tail*' were traditionally pronounced with /eː/. Other words from lexical set FACE were pronounced with the diphthong /ɪə/ in the traditional Egton accent, for instance '*chain*', '*break*' and '*name*'. At the time of Tidholm's study, this pronunciation had changed to /eː/. He says that /eː/ has become "the common Egton substitute for RP /ei/ in traditional /iə/-words like <u>place</u> and <u>same</u>"

(Tidholm 1979: 26). He makes the prediction that the monophthong /eː/ will eventually change towards an RP-type diphthong: /eɪ/ (Tidholm 1979: 88-9).

I) START (NV [aː])

The phoneme /aː/ in words belonging to the lexical set START was used by the large majority of Tidholm's informants. 19.6 of the Old group used RP [ɑː], as did 9.5 of the informants in the Mid group, while none of the youngest informants used this variant. Due to this, Tidholm stated that "[aː] may be one of the few traditional vowels that will persist. It may be a characteristic feature of future Egton speech" (Tidholm 1979: 27).

Tidholm found that the traditional /aː/ in words such as '*five*' and '*side*' was undergoing a change towards /aɪ/ at the time of his study, but even the informants of the youngest age group did use /aː/ in some cases (31.1 %) (Tidholm 1979: 79).

J) GOAT (NV [ɔː])

In the Egton accent, most words belonging to the GOAT-set were traditionally pronounced with a centring diphthong, /ʊə/ or /ɪə/. This is true of words such as '*boat*', '*stone*' and '*know*'. Other words that are pronounced /əʊ/ in RP, such as '*grow*' and '*show*', were pronounced /aʊ/ in the traditional Egton accent. Tidholm expected both the centring diphthong and the /aʊ/ to be substituted by the monophthong /oː/.

K) GOOSE (NV [ʊu])

GOOSE words are pronounced with a glide, [ʊu]. The phoneme /uː/ was also traditionally used in words such as *cow* and *house*, but this usage seemed to be dying out at the time of Tidholm's study, giving the pronunciation [aʊ] or [aʊə] (Tidholm 1979: 98).

L) NURSE (NV [ɜː])

Tidholm states that the [ɜː] "does not occur in the traditional Egton accent, but has been introduced from RP replacing /o/ in e.g. <u>first</u> (5.6.2), <u>word</u> (5.37.1), and /aː/ in e.g. <u>certain</u> (5.14.5)" (Tidholm 1979: 29).

The selection of features for investigation in the present study, which is based on the presentation of vowel phonemes in Tidholm's study, will be discussed in 4.1 below.

3 Theoretical background

3.1 Accent variation and change

A comprehensive discussion of language variation and change would be beyond the scope of this thesis. Thus the following discussion will focus mainly on aspects of variation and change in English relevant to the present investigation.

As Milroy says: "One of the most important facts about human language is that it is continuously changing" (Milroy 1992: 1). He adds that language is also variable, and that different geographical and social variations exist side by side. "In the study of linguistic change, this heterogeneity of language is of crucial importance, as change in progress can be detected in the study of variation" (Milroy 1992: 1).

The study of language variation and change has long traditions, and how changes in progress can be detected has been a central question. Earlier linguists believed that "the actual process of language change is unobservable – it can only be detected through its results" (Bailey 2002: 312). For his studies on Martha's Vineyard and New York City, William Labov developed methods that made it possible to follow changes in progress. His innovation involved for instance methods for quantifying linguistic variation, how variation is embedded in social and linguistic structures, and for identifying the effect of contextual styles (Bailey 2002: 312). Bailey states that Labov's innovative research gave linguists a new "basis for a synchronic approach to language change". He points to the apparent-time construct as the most important of all these innovations, calling it a 'surrogate' for real time examination (Bailey 2002: 313).

3.1.1 Accent contact and change

The present study is based on a thesis written in the late 1970's. Since then there has been a development in the approach to the study of variation and change, and in theories regarding how and why changes spread from speaker to speaker, and from community to community. In his work, Tidholm refers to Received Pronunciation/ Standard English (RP/StE) as the main threat to the survival of the traditional Egton dialect: “We have seen in the preceding chapter that RP/StE has exerted considerable influence on the traditional Egton dialect” (Tidholm 1979: 150). In his following discussion he refers mainly to StE, but it is assumed that this label covers both RP and Standard English. He shows that the Egton dialect has been changing for a long time, in fact his account begins as far back as the 16th century. For the most part, his description is that of language change as a result of dialect contact: “In face to face interaction […] speakers accommodate to each other linguistically by reducing the dissimilarities between their speech patterns and adopting features from each other’s speech” (Trudgill 1986: 39). People from Egton probably had connections with Whitby because of its resources as a fishing village and probably market place, so that “Egton villagers exchanged their agricultural products for fish and utilities of various kinds in Whitby” (Tidholm 1979: 150). He also mentions the influence of vicars or soldiers, who had been educated or absent for a longer period before coming back, bringing with them ‘foreign’ forms. He further points to the establishment of schools as “a great blow to the traditional dialect” (Tidholm 1979: 151), because local children were taught to ‘speak proper’ (i.e. Standard English) there. Tidholm also claims that the establishment of the railway network connecting Egton to the West Riding of Yorkshire at the end of the 19th century made it possible for “StE forms to spread from these cities, once they had established themselves there, to other urban areas in the North, and only later into the surrounding countryside” (Tidholm 1979: 152). He further suggests that these forms reached Egton either via Teesside, or even via York and Scarborough. Although the role of RP/StE as the prestige variety all change moves towards has been discussed and maybe moderated since the time of Tidholm’s study, his model fits the description of ‘geographical diffusion’.

3.1.1.1 GEOGRAPHICAL DIFFUSION

Trudgill holds that changes first occur in a culturally and economically dominant centre. The features then spread in a wave-like form, being adopted first in nearby towns and cities and eventually also in the rural areas in between (Trudgill 1994: 32). Swann, Deumert, Lillis and Mesthrie 2004 state that “the effect of the spread is strongest near the centre, where the new form emerged, and that areas further away from the centre will not adopt the change in its entirety” (Swann, Deumert, Lillis and Mesthrie 2004: 330-1).

Another model of geographical diffusion is the gravity model, which was developed to "account for the linguistic influence of one urban centre on another" (Chambers and Trudgill 1980: 197). In the gravity model, changes are thought to move from the largest city to the next largest city, because there is perceived to be more interaction between places with more population than between cities and smaller places. The distance between the two cities will inevitably influence the spread of a change, so that the larger the distance, the less likely the change. Kerswill states that there are two possible mechanisms behind such changes, geographical diffusion is one and dialect levelling is the other.

3.1.1.2 Regional dialect levelling

'Regional dialect levelling' has been defined as "a process whereby differences between regional varieties are reduced, features which make varieties distinctive disappear, and new features emerge and are adopted by speakers over a wide geographical area" (Williams and Kerswill 1999: 149). They differentiate between the term 'levelling' and the term 'regional dialect levelling', stating that the former should be used for "the linguistic changes which are the outcome of accommodation", and the latter for the "outcome of various partly geographically-based language change processes". Kerswill points out levelling as one of these change processes, while 'geographical diffusion' is another. Levelling takes place when people who speak "different, but mutually intelligible dialects come together" (Kerswill 2003: 223). The individual speakers will try to accommodate their speech in order to be able to communicate more easily with speakers of other dialects, and this so-called 'short-term accommodation' may over time lead to 'long-term accommodation' (Kerswill 2003: 223). Kerswill says that "levelling can only apply in its 'pure' form in cases where there is high mobility within a relatively compact area" (Kerswill 2003: 239).

What makes levelling particularly interesting for this study is the fact that it does not necessarily involve change towards standardisation, but rather that speakers adopt regional varieties instead of their corresponding local forms. In fact, many of the changes Tidholm found in his study of the Egton accent in the 1970's may be said to be a result of levelling. For instance the traditional pronunciation of words belonging to the lexical set FACE was /ɪə/, while the pronunciation at the time of his study was /eː/. Kerswill points to the monophthongisation of FACE vowels from /ɪə/ to /eː/ in

Durham and Newcastle as an example of regional dialect. He says that variants such as the monophthongal pronunciation of FACE are “neutral in the sense that they do not signal a strong or specific local affiliation - even though they are not necessarily standardised towards an external norm such as Received Pronunciation” (Kerswill 2003: 226-7).

As a parallel to the development of FACE, words belonging to the GOAT set were traditionally pronounced with the diphthong /ʊə/, while Tidholm found the pronunciation /oː/ to be salient. Watt and Milroy refer to this as the “unmarked, northern” monophthongal pronunciation of these sets in Newcastle English (Watt and Milroy 1999: 40). The change in the traditional Egton pronunciation of words belonging to both FACE and GOAT may therefore be considered to be an example of regional dialect levelling.

3.1.2 Studying accent variation and change

Studies in ‘real time’ compare data collected at different points in time in order to investigate how for instance an accent has changed from the time of the first data acquisition to the time of the next. Bailey specifies two ways of conducting ‘real time’ studies: “(1) they can compare evidence from a new study to some pre-existing data, or (2) they can re-survey either a community (through a trend survey) or a group of informants (through a panel survey) after a period of time has elapsed” (Bailey 2002: 325). He further notes that there are some difficulties involved in the use of existing evidence. Earlier linguistic data may be hard to find, and the results from earlier studies may be difficult to compare with present-day data due to differences in sampling procedures, elicitation strategies and phonetic transcriptions (Bailey 2002: 326).

Chambers and Trudgill point to one clear advantage in re-surveying a population in the same area and with the same variables (sex, ethnic background, social background, occupation etc.). This approach makes it possible to repeat the survey over an unlimited time span: “The unlimited interval is often necessary, because some innovations are notoriously slow” (Chambers and Trudgill 1980: 164). There are, however, some challenges linked to re-surveys. Although Labov says that “the ideal method for the study of change is diachronic: the description of a series of cross sections in real time" (Labov 1982: 218), Bailey points to several limiting factors. A trend study that uses precisely the same method as that used for the original survey, such as a telephone survey of a random sample of the population, may find that the demographics in the area have changed considerably since the first study. As a result, "the sample populations of the two surveys would not be exactly the same" (Bailey 2002: 326). One might find that changes have happened that are caused by a change in the demographics of the community, rather than in the language itself. However, trend studies may yield useful information as long as the researcher does not confuse demographic change with linguistic change. As for panel studies, Bailey points to the fact that re-interviewing the same informants may not be as straightforward as it sounds. Finding the informants could be difficult, and they may refuse a second interview. One might therefore end up with a group of informants much more limited than was the case in the original study. A trend study thus seems like a better way to conduct a real time study, as long as the problems discussed above are kept in mind. Bailey 2002 states that evidence from trend studies can provide useful information about language change "that either corroborate or lead to the reinterpretation of data from an earlier study" (Bailey 2002: 327).

Tidholm's study of the Egton accent is in part a real time study where existing data have been compared to new data gathered by the researcher. Tidholm based his description of the 'traditional' Egton dialect partly on the work of early orthoepists such as G. Meriton's 'A York-shire Dialogue in its pure Natural Dialect as it is now commonly spoken in the North parts of Yorkeshire' (1684) and Marshall (1788) who "describes the 18th century pronunciation of several East Yorkshire sounds" (Tidholm 1979: 7). He also found relevant information in the Survey of English Dialects (SED) from 1962. His own investigation of how the dialect had changed was based on recordings of his interview with 15 informants from three age groups compared with the 'traditional' Egton dialect described in the old data. Thus his approach was not merely that of 'real time', but also 'apparent time'. Apparent time studies involve

> surveying the differences between the speech of people at different ages, while keeping the other independent variables such as sex, social class, and region the same. The validity of such a study hinges crucially upon the hypothesis that the speech of, say, 40 year olds today directly reflects the speech of 20

> year olds twenty years ago and is thus comparable for diffusion research to the speech of 20 year olds today (Chambers and Trudgill 1980: 165).

Chambers and Trudgill state that apparent time and not real time differences have been the focus of diffusion studies in recent decades. They explain this by pointing out one advantage with this approach compared to that of real time. The fact that the same researcher studies both groups makes it easier to compare them because the interviews, transcription and finally analysis are performed in the same way. If necessary, the researcher can even go back for more information later.

There are, however, certain disadvantages associated with apparent time studies. A few studies have shown changes to correlate with different phases in life in a repetitious pattern over several generations (Bailey 2002: 324). Eckert states that for change in apparent time actually to be a sign of change in real time, the language of an individual would have to either remain unchanged throughout the individual's life, or change in a manner predictable according to the life course. For someone to pass through their life, with all the changes in situation and identity involved, without these changes influencing their use of the variables available is unlikely (Eckert 1998: 151-2). Chambers and Trudgill support this, noting that children adjust their speech to become more like that of their parents gradually even after language acquisition is completed, so that "discrepancies between two age groups may be resolved by the acculturation process rather than representing the diffusion of an innovation in the community" (Chambers and Trudgill 1980: 166). Bailey concurs, but suggests that this can be worked around by using adult informants in apparent-time studies, and by being aware of the possibility of sociolectal adjustments (Bailey 2002: 329-30).

Sankoff, however, points out that most sociolinguists who have applied the apparent time interpretation have done so in studies of "those aspects of language least subject to conscious manipulation or metalinguistic attention on the part of speakers – phonology rather than lexicon" (Sankoff 2004: 121). She points to several studies that have shown "remarkable stability" over the course of several years. She emphasizes the caution with which sociolinguists have made the choice between apparent time and age grading, and further supports Chamber and Trudgill in their view of the dominating position the apparent time approach has held in the 'domain of phonology' (Sankoff 2004: 121).

The present study follows the traditions of both real time and apparent time studies. The apparent time approach is used in the comparison between the speech of informants in two different age groups recorded in 2006, and a real time ‘trend study’ is conducted based on the work of Tidholm from 1979. Combining the two methods is a great advantage, “with the relative strengths of one approach offsetting the weaknesses of the other” (Bailey 2002: 330). Certain challenges were, however, encountered when comparing the data from the present study with those from Tidholm’s work. These are referred to in section 2.2 above, and will also be discussed in Chapter 5.

3.2 Sociolinguistic variables

As we have seen in the discussion above, all living languages change and have always done so. Since the time of 17th century orthoepists, there has been a focus on the instigators of language change, and on the mechanisms tied to the introduction or elimination of features in a language. As mentioned above, earlier linguists saw sound change as corruption of the language in question, a view well demonstrated in the following citation from Whitney: “Such phonetic changes . . . are inevitable and creep in of themselves; but that is only another way of saying that we do not know who in particular is to blame for them. Offences needs must come, but there is always that man by whom they come, could we but find him out” (Whitney 1904 in Labov 2001: 30).

It was in the 1960s that variationists started to focus systematically on social factors in language variation and change. Labov’s study on Martha’s Vineyard in 1963 was a groundbreaker for later work on social factors in phonological change (Labov 1963). In this study, as well as in his subsequent work in New York City, Labov focused on the role of social class in language variation, linking it to other factors such as age and gender. Milroy lists ‘Speaker variables’ (or ‘social characteristics’) as “social class, ethnicity, age and sex” (Milroy 1987: 94). Milroy underlines the theoretical importance of speaker variables: “At the *sampling* stage they are for practical reasons equally important, for it is hard to see how investigators should proceed without some recourse to demographic qualities such as class, sex, or ethnicity” (Milroy 1987: 97). However, Milroy underlines the importance of bearing in mind that managing the speaker variables is no straightforward business, first and foremost because of the problems linked to defining what is meant by each of the factors, and secondly when it comes to interpreting the findings.

3.2.1 Gender

The notion that women and men communicate differently is a well-established truism, often referred to in a humorous way. Numerous self-help books have been written on how to understand the opposite sex better, and 'dictionaries' have been made to translate male or female utterances into 'what they really mean'. While the terms 'sex' and 'gender' are often used interchangeably, there is a subtle difference between them: "sex is generally understood to be a biological attribute of individuals, and gender a social construct which does not map directly on to (apparent) biological sex" (Milroy and Gordon 2003: 100).

Although the differences between male and female use of the language may have been exaggerated in many cases, the fact that men and women use language differently remains. As early as the conquest of the Americas, the European travellers found that in the indigenous tribes they encountered, women and men seemed to speak different languages altogether. As it turned out, men and women merely used different sets of expressions, as recounted in this 17th Century report: "The men have a great many expressions peculiar to them, which the women understand but never pronounce themselves. On the other hand the women have words and phrases which the men never use, or they would be laughed to scorn. Thus it happens that in their conversations it often seems as if the women had another language than the men" (Trudgill 1983: 79-80). In this particular case the difference is of a lexical kind, whereas in for instance English the differences between men's and women's language are more subtle, and include phonetic or phonological differences.

Milroy and Gordon (2003) state that the first sociolinguists had a greater focus on social class than on gender, and saw gender-related variation as dependent on social class rather than as an independent variable. They point to several problems with the 'traditional' approach to gender as a variable. Firstly, they point out that while it is a generally accepted fact that women tend to orient themselves to the norm variety of the language, "specifying the prestige norm to which they are said to orient is not always straightforward" (Milroy and Gordon 2003: 101), because what is considered the norm may vary. Secondly, “A further difficulty with traditional variationist assumptions about the nature of the interaction between social class and gender is that class is not necessarily the variable that accounts for the greater part of the variability” (Milroy and Gordon 2003: 101). Several sociolinguists have found proof that gender is in fact of greater importance in language variation patterns than class or age. In their study of Tyneside vowels, Watt and Milroy found gender to be “the variable which divides the speakers most sharply” (Watt and Milroy 1999: 35).

Labov points to two principles of linguistic differentiation of men and women:

“(I) In stable sociolinguistic stratification, men use a higher frequency of non-standard forms than women” (Labov 1990: 205-06). He states that when changes come from above, i.e. changes of which the speakers are consciously aware and which are mostly connected to prestige, women tend to prefer the new form more than their male counterparts do (Labov 1990: 213). This has been found to be true in several studies, such as for instance Labov 1966, Milroy and Milroy 1978, and Mathisen 1999.

Labov’s second principle is:

“(II) In change from below women are most often the innovators”. Changes from below lie below the level of social awareness, and “include the systematic sound changes that make up the major mechanism of linguistic change” (Labov 1990: 215).

Chambers states that most sociolinguistic studies that involve male and female informants give evidence to the theory that women use fewer non-standard variants of the language than men who belong to the same social group (Chambers 1995: 162). However, the impact of gender on the processes of language change in a society depends on the social structures of that society: “for example it is likely to be manifested differently in pre- and post-industrial societies and to vary in accordance with culturally determined roles assigned by societies” (Milroy 1987: 101). Milroy also points to another problem that has made gender as a speaker variable somewhat imprecise. Women have often been classified seemingly randomly, sometimes according to their husband’s or father’s class, sometimes based on their own careers. Milroy finds that “because of this, it is hard to take seriously the various interpretations of linguistic sex-marking which are based upon the notion of *prestige*.

Perhaps the commonest explanation of the patterns that emerge from a stratificational analysis is that in the absence of opportunities to mark status by occupation, women resort to language" (Milroy 1987: 102). Labov supports this, and states: "Women are said to rely more on symbolic capital than men because they possess less material power" (Labov 1990: 214).

Trudgill (1974) found that women had a lower percentage of non-standard features than men in all the variables in his Norwich study. He offers two explanations for this. Firstly, women are more conscious of status than men, and hence they are consequently more aware of what social significance the various features carry. He further states that the reason for this awareness may be that

> i) The social position of women in our society is less secure than that of men, and, generally speaking, subordinate to that of men. It is therefore more necessary for women to secure and signal their social status linguistically and in other ways, and they are more aware of the importance of this type of signal.
>
> ii) Men in our society can be rated socially by their occupation, their earning power, and perhaps by their other abilities: in other words, by what they do. For the most part, however, this is not possible for women, who have generally to be rated on how they appear. Since they cannot be rated socially by their occupation, by what other people know about what they do in life, other signals of status, including speech, are correspondingly more important (Trudgill 1974: 94).

Secondly, Trudgill states that because of the supposed "roughness and toughness" of working class life, working class speech is linked with masculinity and "desirable masculine attributes" (Trudgill 1974: 94). These characteristics are not as desirable for women, who want to appear more refined. Based on her study 'Jocks and Burnouts: Social Categories and Identity in the High School' (Eckert 1989), Eckert argues that while men "develop a sense of themselves and find a place in he world on the basis of their actions and abilities, women have to focus on the production of selves - to develop authority through a continual proof of worthiness" (Eckert 1998: 73). She disagrees with the generalization of women as more linguistically conservative than men, and states: "Rather, the generalization is likely to have more to do with women's greater use of symbolic resources to establish membership and status" (Eckert 1998:73).

In his study, Tidholm shows that his female informants are in the vanguard in adopting standardised features (Tidholm 1979: 11). In the present study, 50 % of the informants in each age group were female. Gender is an important speaker variable in this study, which is in accordance with those who have suggested that gender should indeed "*take precedence over* class as the major speaker variable" (Milroy 1987: 102).

3.2.2 Age

It is a well-established fact that different age groups speak differently. Coulmas states that speech variation in different age cohorts are expected (Coulmas 2005:54), and Eckert says that both individual speakers and age groups represent a place in history and a life stage, and that "age stratification of variables" can reflect historical change (Eckert 1998: 151).

Age as a sociolinguistic variable is especially interesting as a means of studying how an accent, a dialect or a language develops over time. Stockwell points to two methods for studying an accent over a longer time-span. The first method involves comparing existing studies and the features described there with modern studies, as discussed above under 3.1.2. "The other method is to investigate the variations in usage across the age ranges, since older people will manifest earlier forms of language learned in their youth" (Stockwell 2002: 15).

One general assumption in the study of variation and change has been that most linguistic variation occurs in childhood and adolescence (Murphy 2010: 10). Eckert states that

> Adolescence is the focus of development of the social use of the vernacular, and in general is seen as the time when linguistic change from below is advanced. Adolescents lead the entire age spectrum in sound change and in the general use of vernacular variables, and this lead is attributed to adolescents' engagement in constructing identities in opposition to – or at least independently of – their elders (Eckert 1998: 163).

Labov 1962 uncovered that in many cases the younger speakers, particularly the male, "approximate more closely to an island vernacular than middle-aged speakers" (Milroy 1980: 114). A similar development seemed evident in Trudgill 1974, where among other things the "(a) variable in Norwich […] had a diphthongized reflex (in items such as *bad*, *man*) which represents a movement *away* from the RP norm and is particularly associated with people under the age of thirty" (Milroy 1980: 114). Labov holds that "There can be no doubt that linguistic change and the acquisition of new forms is most vigorous and active in the adolescent years, and that language learning is much reduced in the years that follow" (Labov 2003: 21).

While earlier approaches to age as a sociolinguistic variable focused on the changes that take place in a person's language from birth to adolescence, more recent research has taken into account changes such as "divorce, career shifts, promotion, as well as the significant increase in life expectancy" (Murphy 2010: 8) and has shown that older age groups also experience change. Even if adulthood as a life stage has become more interesting in sociolinguistic research, there are still few studies that focus on linguistic changes in this age group. There has also been a tendency to view adults as a homogeneous age mass. Few have studied young adults or the healthy elderly (Murphy 2010: 11).

As Eckert points out, age as a sociolinguistic variable has not been extensively investigated (Eckert 1998: 167). The tradition of using age cohorts as a means to show change in progress in accents studies is, however, well established, as shown in the discussion above. For the present study, as was the case for that of Tidholm, the informants have been grouped according to age in order to investigate possible changes according to the method of apparent time. The question of age grading will be kept in mind when the results of this study are discussed.

3.2.3 Social networks

Milroy says that "an individual's social network is simply the sum of relationships which he or she has contracted with others" (Milroy 1987: 105). Thus the social network as a sociolinguistic variable is based on the relationships an individual forms with other individuals, rather than focusing on comparisons between groups of speakers. This variable is particularly useful when it comes to explaining why "stigmatized and low-status forms of language tend to persist despite strong pressure from 'legitimized' norms" (Milroy and Milroy 1998: 59).

Closeknit networks are often 'multiplex', meaning that many of an individual's contacts are also linked together, and people may know each other for instance both as neighbours and colleagues (Milroy 1987: 105-6). Milroy says that pressure within a closeknit network may lead to the preservation of for instance certain linguistic norms other than those of the perceived 'standard': "This means that if an individual is embedded in such a network, s/he is more liable than one whose network is relatively looseknit to be vulnerable to pressure exerted by everyday social contacts" (Milroy 1987: 106). Milroy and Milroy state that the role a closeknit network plays in maintaining non-standard variants becomes evident because "the LOOSENING of such a network structure will be associated with linguistic change" (Milroy and Milroy 1985: 359).

Looseknit networks are somewhat complicated to work with as a social variable because the more looseknit the network structure is, the more difficult it is to find factors that make it comparable to other network structures (Milroy 1987: 107-8). Milroy emphasises the importance of looseknit networks, or the lack of multiplicity, in language change: "Mewett (1982) has suggested that class differences begin to emerge as the proportion of multiplex relationships declines, multiplexity being an important characteristic of a closeknit type of network structure" (Milroy 1987: 108). Milroy points to Granovetter (1973), who " has argued that 'weak' and uniplex interpersonal ties […] are in fact important channels through which innovation and influence flow from one close-knit group to another" (Milroy 1992: 178). Milroy states that the concept of social network is useful for studying "relatively small, self-contained groups in more detail than is possible within a large-scale survey framework" (Milroy 1987: 109). She also points to the advantages of social network over social class in studies of "minority ethnic groups, migrants, rural populations or populations in non-industrialized societies" (Milroy 1987: 109).

Although many of the informants interviewed for the present study belong to the same social network, as a result of the way the informants were recruited (see discussion in 4.4.1.1 below). The informants will not be grouped according to social network as a sociolinguistic variable, but possible effects of the relationship between the informants who can be said to belong to the same network will be taken into account.

3.2.4 Social class

Social class has been used for many sociolinguistic studies as a means to provide a reliable social grouping to which the informants' speech could be related. Milroy states that most sociolinguistic research more or less consciously has followed Labov in adopting the 'functionalist' view on social class. She defines class according to functionalists as consisting "of a group of persons sharing similar occupations and incomes, and as a consequence similar life-styles and beliefs" (Milroy 1987: 99). It is the view of social class as "a product of shared values and broad social consensus" (Milroy and Gordon 2003: 95) that Milroy is critical of. As she points out, "When linguists declare an interest in the 'social class' of speakers, they are commenting on the position of those speakers relative to each other in a class-stratified society which has evolved as a consequence of unequal access to power and advantage" (Milroy 1987: 29). It is easy to imagine that this could be a source of conflict.

Thomas points to several problems related to the quantification of social class: "any scale to rate it will be subjective – do you base it on income, education, occupation, domicile, neighbourhood, family background, leisure activities or some combination of these?" (Thomas 2011: 291). Trudgill states that most sociolinguists have made more or less unsuccessful attempts at measuring social class. As an example, he describes the work of Kurath and McDavid (1961), in which class position was practically identical to educational level, thus ignoring other stratifying factors (Trudgill 1974: 35). In Trudgill's view, there were at the time of his study only a few sociolinguistic studies that had successfully measured the social class position of the informants involved. Labov's survey in New York City (1966) was one of them (Trudgill 1974: 34). Milroy, however, questions Labov's view on agreement between social strata regarding the prestige of certain linguistic features. Most people, she argues, do not have an impartial feeling of class membership (Milroy 1980:14). Few people have an objective view of their own place in the class structure, and may therefore not see their use of certain features as relevant.

Over the years informants have been grouped according to class based on for example parents' occupation, speaker's occupation, education and neighbourhood (Milroy and

Gordon 2003: 40-47). Other linguists have based their research on only one of these factors, depending on the focus of the research. According to Chambers, one-class studies are now common. Studies contrasting speakers according to class, for example by selecting informants from two opposite neighbourhoods in the same city, are also common (Chambers 1995).

As referred in the discussion of the social network model above, Milroy points out that social class is not the most appropriate variable to use when accounting for variation and change in accents in rural areas (Milroy 1987). A thorough sociolinguistic analysis of the accent of Egton would therefore not be relevant, but social class will be taken into consideration during the analysis of the data material in retrospect. Thus the informants were not selected based on their belonging to one social class or the other, but a note of the informant's education or occupation (age group mid) and parents' occupation (age group young) was made during the interview to facilitate relating the results to class belonging if there seemed to be a connection.

In his study, Tidholm focused mainly on the sociolinguistic variables age and gender. The informants were assigned class membership, but they were not chosen based on this classification. This approach is used in the choice of informants for the present study as well, both because age and gender have been pointed out as important variables in the discussion above and because a selection based on the same criteria as those used by Tidholm makes a comparison of the two studies more straightforward.

3.3 Analysing language sounds

Throughout the history of variationist research, linguists have used phonetic transcription based on auditory perception as a tool for describing the inventory of sounds and how they change. Transcriptions have been made using the International Phonetic Alphabet, in which certain standard symbols are used for the same sounds in different languages. This alphabet was developed around the turn of the 20th century, and has been edited several times in accordance with new knowledge of sounds in the world's languages. Early linguists relied solely on auditory analysis of the accents or languages they studied, and valuable work has been produced using this approach. In more recent times, however, techniques for carrying out acoustic analysis have been increasingly available for researchers. Computer programmes for acoustic analysis are easily accessible for anyone who wants to download them from Internet, and this approach to sound analysis provides a more objective measure of phonetic features.

The reliability of phonetic transcriptions based on auditory analysis alone, both with regard to the consistency with which single transcribers treat sounds, and the likelihood of two different phoneticians assigning the exact same phonetic qualities to a sound, has been questioned (see e.g. Kerswill and Wright 1990: 258). For the present study an auditory analysis was conducted to determine which features would be interesting to analyse in more detail acoustically. As the present study focuses on the vowels in the Egton accent, a detailed description of the phonetic analysis of consonants goes beyond the scope of this thesis. The following discussion will therefore focus solely on the acoustic analysis of vowels.

3.3.1 Acoustic analysis

Ladefoged states that vowels are best described in terms of "their acoustic properties" (Ladefoged 2003: 104). He advocates the use of spectrograms to determine the formant frequencies of the vowel in question. Ladefoged says that the two first formants are normally sufficient to characterize vowels, except for "high front vowels and r-coloured vowels", for which the third formant should also be included (Ladefoged 2993: 105). Johnson supports the emphasis on the importance of F_1 and F_2, and describes how the first and second formants correlate to the "traditional impressionistic vowel triangle":

> Vowel height is negatively correlated with F_1 frequency; [high] vowels have low F_1 , and [low] vowels have high F_1 .(…) Similarly, vowel frontness is correlated with F_2; [front] vowels have high F_2, and [back] vowels have low F_2 (Johnson 1997: 113)

3.3.1.1 QUALITY

Ladefoged says that vowel quality should be measured close to the middle of the vowel, as long as the vowel is not a diphthong. The measurement should also preferably be taken at a point where both the first and second formants are relatively steady. For diphthongs the measurement should be taken at two points, the first one at the beginning of the vowel, but after the consonant transition, and the other closer to the end, again avoiding the consonant transition (Ladefoged 2003: 105).

Tidholm characterised the vowels in the Egton accent based on their perceived quality. In order to compare his findings to those of the present study, determining vowel quality in the selected lexical sets will be the main focus in the analysis of the recordings made for this study.

3.3.1.2 DURATION

Kent and Read (1992) point to the important role of vowel duration in helping the listener to distinguish one vowel from another "spectrally similar" vowel. Vowel duration is influenced by the following factors: "tense-lax (long-short) feature of the vowel, vowel height, syllable stress, speaking rate, voicing of a preceding or following consonant, place of articulation of a preceding or following consonant, and various syntactic or semantic factors such as utterance position or word familiarity (Kent and Read 1992: 95). Gimson states that length alone is not a distinguishing feature in RP:

> Only in the case of /ə - ɜː/ can there be said to exist an opposition solely of length and even in this case it has to be stated that /ə/ occurs only in unaccented syllables, whereas /ɜː/ can occur in syllables carrying primary or secondary accent (Gimson 1989: 96).

It is, however, important to note that in certain other accents of English vowel duration can in fact be a distinctive feature. Thomas points to the pronunciation of '*cut*'[kʰat] and '*cart*' [kʰaːt] in Southern Hemisphere English, where length is the only difference (Thomas 2011: 143).

In the present study, duration is measured only in lexical sets TRAP, BATH and START. The reason for this is that BATH words are traditionally pronounced with a short vowel in the Egton accent, while the standard pronunciation is with a long vowel. Tidholm did not systematically measure duration of vowels in his study, so the results of the durational measurement cannot be compared to his. He does, however, point to Standard English/RP as the main source of influence for changes in the traditional accent, and it is interesting to investigate whether the long pronunciation of BATH words has 'caught on' in Egton, or whether this lexical set is still pronounced with a short vowel.

4 The present study

The following discussion outlines the focus of as well as the methods used in the present study. It gives a detailed account of the selection of features investigated, and of how these features were analysed. It also summarises the findings provided by the analysis.

4.1 Aim and focus

The aim of this thesis is to investigate how some aspects of the Egton accent have or have not changed over the past 30 years, compared with the findings of Tidholm in the late 1970's. Some vowel phonemes of the Egton accent seemed to be undergoing changes at the time of Tidholm's study, and in the following discussion some of these will be studied to investigate whether or not they have changed the way Tidholm predicted. Because of the fact that the consonantal system of the Egton accent largely corresponds with that of RP/Standard English (Tidholm 1979: 36), and due to the relatively restricted scope of this thesis, the consonant phonemes of the accent will not be included in the following discussion.

The selection of features described in this thesis was based partly on Tidholm's predictions (Tidholm 1979: 153-159) and partly on a preliminary, auditory analysis. The choice was made to focus primarily on the vowel quality of words belonging to lexical sets TRAP and BATH, and to the quantity of the latter. Due to the origin of the vowel of lexical set START, this set will also be included in the analysis, chiefly to compare its quality and quantity with that of TRAP and BATH. Gimson states that some regional accents of English have a more fronted vowel quality in START-words than the retracted RP-quality /ɑː/ (Gimson 1989: 112-113). Wells concurs with this: "Front realizations, in the vicinity of cardinal 4, [aː] (*sic*), are characteristic of many parts of the north of England" (Wells 1982: 158). My hypothesis is that the quality of the vowels in these three lexical sets is still the same, and that words belonging to START differ from those belonging to TRAP in quantity only. This hypothesis is supported by Wells (Wells 1982: 234). I also want to investigate whether words belonging to the lexical set BATH are more similar to words from TRAP or START in quantity.

The vowel quality in lexical sets FOOT and STRUT is another interesting feature in the Egton accent, and my hypothesis is that the traditional pronunciation with /ʊ/ in both sets is still the most common. Lexical sets FACE and GOAT will also be discussed briefly, and my supposition is that the traditional monophthongal quality of these sets, giving /eː/ and /ɔː/ rather than /eɪ/ and /oʊ/, is still the rule rather than the exception.

4.2 Method

4.2.1 Data collection

4.2.1.1 The Informants

The material for this study was collected in September 2006, during a three-week stay in Egton. Local contacts had volunteered to help find informants for the study. This approach, where the researcher makes use of the social networks of the informants to find additional informants, is referred to as 'snowball-technique' by Milroy and Gordon, and has been used by several sociolinguists. One of the advantages of finding informants in this manner is that many find it easier to accept a proposal if it comes from someone they know, or if someone they know have suggested that they should be asked: "… the investigator approaches a new subject not as a complete outsider but more in the role of a 'friend of a friend'" (Milroy and Gordon 2003: 32).

However, finding the best informants possible for this study proved more complicated than expected, even with the help offered by my first informant. As mentioned initially, the demographic trend in the Egton area is towards an older population, mostly from other parts of the country. Informants with the background I was interested in seemed to be few and far between, and many of those who would have been interesting for my study refused to be interviewed. Not surprisingly, most of the inhabitants with the right background were related in some way or other, and if one of them said no, so did the rest of the 'clan'. Because of this, many of the informants interviewed for this study belong to the same families.

As mentioned above, I chose to interview informants from two different age groups: mid (45-60) and young (15-30) (see Appendix 4). One of the young male informants was only 14 years old at the time of the study. Three male and three female informants were used in both age groups. I also interviewed an additional female belonging in the ‘young’ group, giving a total of 13 informants. It is not a random sample, and due to the fact that so many of the informants used for this study are related in some way or other, and to the low number of informants, the results presented in this study should not be seen as representative of the whole Egton accent as such. However, it may give an indication of the direction of change in the accent, and at least be used as a starting point for more extensive studies of the accent of this area.

4.2.1.2 THE RECORDING

The interviews for this study were recorded on a fourth generation iPod with a Belkin voice recorder for iPod. The iPod worked well for several reasons. First of all, it was easy to set up, and ready to record in few seconds. It is also small and inconspicuous, and the voice recorder was able to produce good quality recordings without the microphone being held close to the mouth of the speaker. This meant that once the recording was turned on, it could lie on the table or even the armrest of the chair the informant was sitting in. The recordings could easily be copied to the computer for later analysis, and rendered themselves well to acoustic analysis.

The main drawback when it came to recording with an iPod was that the iPod itself periodically made quite a lot of noise, even if it did not reduce the data quality in a way that disturbed the acoustic analysis. The microphone was non-directional, making the voice recorder very sensitive to noise in the recording environment so that the noise of passing cars, people speaking in the next room or even a burning stove was picked up during the recording. Ideally, this kind of recording should be conducted in a soundproof room with no other sounds than the voice of the informant. However, when working in the field and interviewing people who volunteer out of sheer idealism, such commodities are seldom available. Most of the interviews were done in the home of one of the informants, and it would have been impolite to ask the people living there to keep quiet during the interview. For the most part disturbing noise did not render the recording useless for acoustic analysis, except for parts of the interview with informant 1A. At the time of the interview, the RAF suddenly started an exercise overhead, and some parts of the wordlist had to be excluded from the acoustic analysis as a result of this. Unfortunately it was not possible to re-schedule the interview, but the number of tokens affected was not disturbingly high.

4.2.1.3 THE INTERVIEWS

The informants were all interviewed individually, and without others being present. The only exception was the father and son, who were both present when the other was interviewed. The son, who was only fourteen years old, was most comfortable having his father there.

The questionnaire used for the interviews was based on that used by Trudgill in the study of the Norwich accent (Trudgill 1974: 95-97) (Attachment 1). Each interview began with a couple of minutes speaking about the informant's background, family, work and education. Next they were asked to read a wordlist containing a total of 122 words from lexical sets BATH, FACE, FOOT, GOAT, START, STRUT and TRAP. Most of the informants had no problems reading the words, although one did get the occasional "blossom" instead of "bosom" and so on.

The wordlist was followed by questions about local dialect words. The interviewer asked the informants whether he/she had heard a certain local word (*pissymare-hill*, which was found in Tidholm's material), and then continued the conversation by asking the informant for other dialect words from the area. Many of the informants used dialect words without being aware of it, such as *bairn* (child).

After this the informant was asked to read a short story of 240 words devised by Wells (Attachment 3). Next the interviewer moved on to questions about Egton and the surrounding area, in order to establish the informants' feelings about their home village, what they liked/disliked about the village and which changes they saw taking place. They were also asked about the relationship between the neighbouring villages – whether they considered them as separate communities or as one. Being situated in the Esk valley, Egton and Egton Bridge are surrounded by a number of villages both further up the valley and down towards Whitby.

The interview was concluded with a conversation about how the informants felt about their accent, and how they believed the accent was regarded by people from the outside.

The duration of each interview varied between 11 minutes to 40 minutes. For some of the informants the interview was squeezed into an already tight schedule, and they may have felt pressed for time because of this. This was particularly the case with informant 2D, who was on her way from one job to the next.

Some of the informants were more comfortable in the situation and elaborated more on each question than others, who tended to "speak when spoken to" and not take as much initiative. Milroy (1987: 46) points to the fact that "people who are being questioned will seldom produce large volumes of speech in their replies". The reason for this may simply be that he/she tries to give answers that are short and to the point, rather than elaborating. This may be attributed to the roles of the participants in the interview, namely that of the 'questioner' and the 'respondent' (Milroy 1987:42). Labov maintains that the "basic counter-strategy of the sociolinguistic interviewer is to acknowledge the position of the interviewer as a learner, in a position of lower authority than the person he is talking to" (Labov 1981 in Milroy 1987:49). Wolfson contests this, and identifies two potential problems if the interviewer adopts a lower authority than what is expected: Firstly, this may lead to "confusion, embarrassment and even hostility, since interviewees *expect* interviewers to ask them a series of clear questions" (Wolfson 1982 in Milroy 1987: 47). Secondly, an interviewee that sees him-/herself as superior to the interviewer may even reverse discourse roles, and begin asking questions instead of answering them.

In general the interviews went very well. Many of the informants expressed some degree of nervousness before the interview began. The possibility of talking about themselves and answering questions about familiar topics in the beginning made them relax more, and the interview eventually became more like a pleasant, normal conversation.

As mentioned above, words from lexical sets BATH, FACE, FOOT, GOAT, START, STRUT and TRAP were included. This selection was based on the predictions made by Tidholm, where he stated which features were most likely to withstand time and RP influence. The list was not in alphabetical order or grouped according to lexical sets.

The reading passage was chosen because it provides tokens of all the lexical sets. Unfortunately it turned out to be badly suited for this group of informants. Many of them were quite poor readers, and the use of the chosen text made them selfconscious and uncomfortable. The reading passage should have been shorter and contained easier words. Giving the informants a couple of minutes to prepare for reading the text may also have made it easier for them.

4.2.2 Analysis

An analysis of all the recorded material proved too extensive for this thesis. In order to investigate the possible changes from the time of Tidholm's study, the following analysis focuses on the tokens provided by the wordlist. As mentioned above, a preliminary auditory analysis was carried out to narrow down the number of lexical sets before an acoustic analysis was conducted on the features that seemed most interesting based on the auditory investigation.

4.2.2.1 Preliminary auditory analysis

In order to facilitate the analysis of the recorded material, words from the wordlist were grouped according to lexical set and according to informant. This procedure was undertaken for all lexical sets included in the wordlist. Subsequently an auditory analysis was conducted in order to obtain a general impression of the vowel phoneme qualities. The auditory analysis was carried out by listening to words from one lexical set at a time, comparing them successively.

Words belonging to lexical sets BATH, START and TRAP were all traditionally pronounced with the /a/ characteristic of so-called 'flat-A'-accents (Wells 1982: 134). Tidholm expected no immediate change in the quality of the vowel in these lexical sets, a view supported by Wells:

> There are many educated northerners who would not be caught dead doing something so vulgar as to pronounce STRUT-words with [ʊ], but who would feel it to be a denial of their identity as northerners to say BATH-words with anything other than short [a] (Wells 1982: 354).

The preliminary analysis of the material gathered for this study, however, seemed to suggest otherwise. There appeared to be a rather large variation in the quality of this vowel both within the tokens from individual informants and between the informants. The main part of the analysis therefore focuses on the quality of the vowel in words belonging to lexical sets TRAP, BATH and START. Duration is also included in this analysis for two reasons. Firstly, it is interesting to compare duration vs quality in lexical sets BATH and START because, as mentioned above, traditionally the difference between these sets was purely that of duration. It is also interesting to see whether BATH, traditionally pronounced with a short /a/, remains closer to TRAP than START in duration, or if it has become longer and thus may be said to be developing towards an RP-influenced duration.

Words belonging to lexical sets FOOT and STRUT appeared to be pronounced with the back, close-mid, rounded /ʊ/ characteristic of the traditional Egton accent and the Nortern accent in general. However, there did seem to be some variation in the quality of the vowels in both lexical sets. At the time of his study, Tidholm found the quality of the traditional /u/ (Tidholm's notation) to be undergoing a change towards RP /ʌ/. Even though he expected the traditional quality to survive for generations yet, he did show that his female informants in particular pronounced this vowel with a more central quality close to /ə/. The same tendency was pointed out by Wells (Wells 1982: 352-3), and it was therefore interesting to investigate the qualities in the present data further. Approximately ten words from each lexical set for each informant were analysed acoustically.

Words belonging to lexical sets FACE and GOAT seemed, based on the initial analysis, to be pronounced with a steady monophthong by all informants. Even in cases where there appeared to be a slight glide this was no more prominent than the occasional glide that may be seen as a part of the consonant transition in the pronunciation of monophthongs. As described above, Tidholm found that at the time of his study, a change might have been in progress involving FACE, whereas GOAT was expected to remain relatively unchanged for as long as he could envisage. Watt, however, states:

> It is reported widely in the phonological literature that these 'close-mid' vowels, in terms of their phonetic exponents, often behave in a mirror-image fashion with respect to one another [e.g. 10]. That is, the characteristics of the phonetic exponents of either vowel category are similar to those of the other vowel category. This relationship is argued to be a property of phonologies cross-linguistically, and operates in some sense independently of the speakers who make use of the surface forms of the two vowels (Watt 1999: 1621).

As a means to verify the postulation made above about the unchanging status of both lexical set FACE and GOAT, especially considering Watt's statement above, a total of ten randomly chosen words belonging to FACE and ten belonging to GOAT were analysed acoustically in order to confirm their continued monophthongal quality. The results of this analysis will be discussed following the detailed account on the acoustic analysis.

4.2.2.2 Acoustic analysis

The acoustic analysis was conducted using Praat version 5.2.09. All the words from the wordlist were imported into the programme, and spectrograms were made to determine the average formant frequencies from a selection of the most stable part of each token. The programme was asked to show formants, setting the maximum formant (Hz) to 5000 for male informants and 5500 for female informants. The vowel was then isolated by placing the cursor at the perceived onset and offset of the vowel. Subsequently, the attempt was made at finding a steady state area for both F1 and F2. The point of selection, the mid-point of the steady state area, therefore varied from token to token, depending on where the steady state area appeared. If there was no clear steady state area to be found, an average value was taken from the steadiest area near the centre of the vowel. The formant values of the selected areas were extracted automatically by editing the 'Log settings' under 'Query' in Praat according to informant code (1A, 1B etc.), lexical set and word. The values were saved in a TextEdit-file, and later imported into Excel for further analysis.

As a means of checking the results, an LPC analysis was conducted on the tokens with the highest and lowest F1 and F2 levels, as well as on certain results where there was doubt about the formant values provided through the spectrograms. There were a few instances where Praat was unable to present credible formant values. Watt and Tillotson referred to the same problem in their study on fronting in Bradford English:

> There was in fact a significant number of cases in which the spectrum generator failed to detect F_2 reliably, either because of the ambiguity caused by closely-packed harmonics with approximately equal intensities, or because acoustic energy above the range typical of F_1 for a particular speaker was relatively weak or sparse. The latter phenomenon was especially common in the speech of female subjects. It is suggested that digitisation at a higher sample rate (say, at the next highest setting of 22,050 Hz) or adjustment of the LPC parameters might have overcome this problem (Watt and Tillotson 2001: 213).

The acoustic analysis of women and children is more complicated than analysing male voices. Early acoustic phoneticians focused mainly on male informants, and the methods and settings used for male voices were not always suited for the analysis of female and children's voices. Titze (1989) wondered "if the source-filter theory of speech production would have taken the same course of development if female voices had been the primary model early on" (Kent and Read 1992: 154). Kent and Read point to several problems related to the acoustic analysis of female speech, the most important being larger intervals between the harmonics of the sound, which makes finding the formants more difficult (Kent and Read 1992: 156). Women's voices are also generally more breathy than men's, making both spectrographic formant analysis and LPC analysis problematic.

The problems regarding finding clear F2 frequencies especially common in Watt and Tillotson's female informants correspond greatly to the difficulties in the same area for parts of the analyses in this thesis. In these cases the formants were removed and values taken manually from the spectrogram, if possible. It is, however, important to be aware of certain shortcomings of this method, as pointed by Ladefoged 2003:

> Formant trackers are not the only ways to measure the formants in a vowel. The crudest, and not the best for anything except a quick assessment, is to use the cursor to make measurements directly on the spectrogram (Ladefoged 2003: 117).

For some of the tokens the F2 values could not be found, and since an adjustment of the sample rate for digitisation was not an option at this point, the tokens in question were discarded.

For words belonging to lexical sets TRAP, BATH and START duration was measured by placing the cursor at the beginning of the vowel (after the consonant transition) and at the end (before the consonant transition) and extracting the time automatically by editing the log settings. If the vowel occurred word-finally there was sometimes a slight resonance that made it difficult to determine the exact offset. In these cases the sound wave was used to determine where the vowel ended.

In the following discussion words from the wordlist belonging to lexical sets TRAP, BATH, START, FOOT, STRUT, FACE and GOAT will be referred to with the name of the lexical set. The description of the analysis will be more detailed in the two first informants. For the remaining eleven the analysis will be discussed in slightly less detail, only including spectrograms to illustrate particular problems that arose during the analysis. The formant values of all tokens in TRAP, BATH and START were plotted in a scatter diagram in order to illustrate the variation in pronunciation between tokens and sets. The formant values found in the analysis of the selected FOOT- and STRUT-words were inserted in a formant plot diagram using the programme JPlotFormants. These diagrams are included for each informant.

The vowel quality in randomly selected words belonging to lexical sets FACE and GOAT have been analysed. The results of this analysis were quite uniform, in that there did not seem to be a diphthongisation in these words. These lexical sets will therefore be discussed only briefly following the detailed account per informant on the analysis of the other lexical sets.

4.2.2.2.1 Informant 1A

A) TRAP

After the auditory analysis, the general impression of 1A's vowel quality in TRAP was that the vowel seemed to be slightly more close and fronted than one might expect in this area. The vowel appeared to have a similar quality for all the words, even though the vowel in *hang* was thought to sound slightly more fronted than the vowels in the rest of the TRAP-words.

All the TRAP-words from the wordlist were analysed acoustically in Praat. All the TRAP-words provided clear spectrograms with steady formants, making the identification of a steady state area quite straightforward (fig. 1).

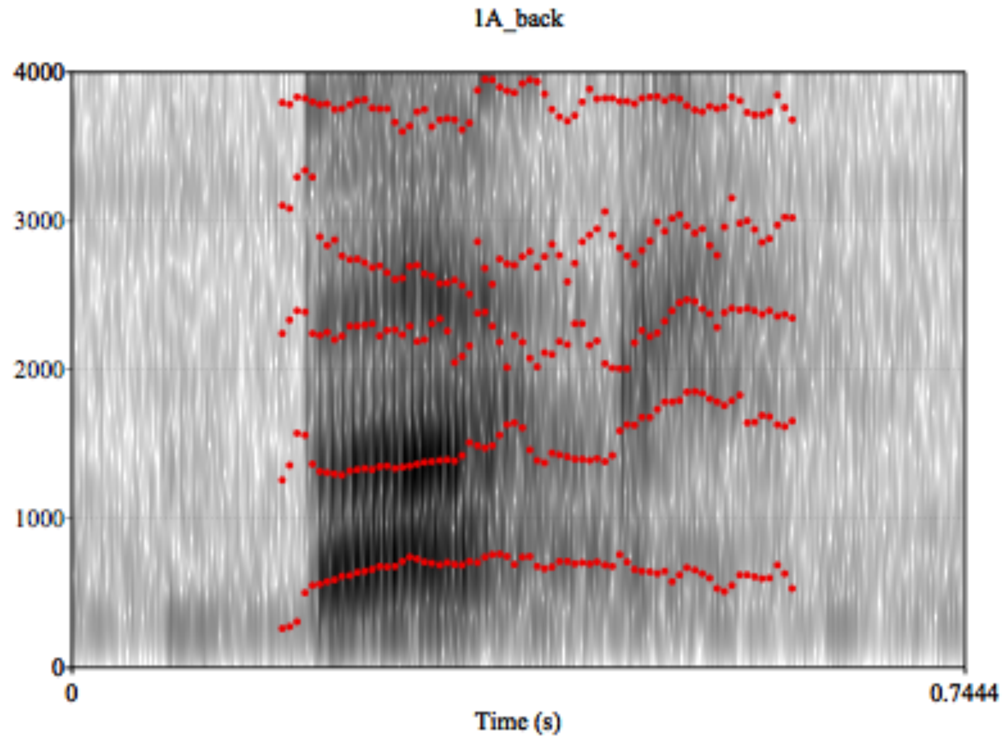


Fig. 1: Spectrogram showing formant contours in 1A back.

As shown in fig. 1, the F1/F2 values of A1's pronunciation of words belonging to lexical set TRAP are restricted to a quite small area in the diagram, with F1-values ranging from 647-748 Hz and F2-values from 1352-1494 Hz. Based on the material provided by the wordlist, it seems fair to suggest that the variation within the lexical set for this speaker is rather limited. It is interesting to note that the vowel in *hang* appears in the middle of the cluster of points in fig. 1, thus not differing from the other pronunciations in the way suggested by the auditory analysis.

The duration of lexical set TRAP was also measured. This set is traditionally pronounced with a short vowel in the Egton accent, and this is also true for the RP variety. There is no indication that this undergoes any kind of change, but it was interesting to use TRAP as a 'standard' with which BATH could be compared (see b) below for further discussion on BATH). The result of this analysis showed that the duration of TRAP-words varied within a range from 0.11 ms to 0.17 ms.

B) BATH

The auditory analysis indicated no noticeable vowel quality variation in words belonging to the lexical set BATH.

All BATH-words from the wordlist were analysed in Praat. The vowel quality in BATH-words seems slightly more varied than that of a) above, especially in the range of F1, which goes from 631-777 Hz. F2 varies between 1350-1486 Hz, which is quite similar to the range of F2 in a). What can be deduced from this is that the variation of vowel quality in BATH-words is limited, and closely matches that of TRAP in most cases.

The duration of BATH-words was also measured. As discussed in section 2.2.1., these words were traditionally pronounced with a short /a/. Certain words belonging to this lexical set, however, are known to have a longer vowel than the others. Examples of this are *calf*, *half* and *can't*, all included in the wordlist. As described in Wells 1982, these words belong to a group of words that "typically have the PALM vowel in the otherwise flat-BATH accent of the north of England" (Wells 1982: 135). On account of this, one would expect the vowels in these words to be longer than those in other BATH-words. This assumption is confirmed in the measured duration:

calf: 0.21 ms

can't: 0.22 ms

half: 0.20 ms

In comparison, the rest of the BATH-words range in duration from 0.05-0.09 ms (*France* - *mask*).

C) START

The auditory analysis gave a strong indication that the vowel quality in words belonging to the lexical set START was close to that of TRAP and BATH.

All the START-words were analysed acoustically in Praat. In *marvellous* there is some noise from the iPod, but it does not interfere with the analysis. The spectrograms for START were clear and the programme provided a steady state area that was good for finding formant values (fig. 2).

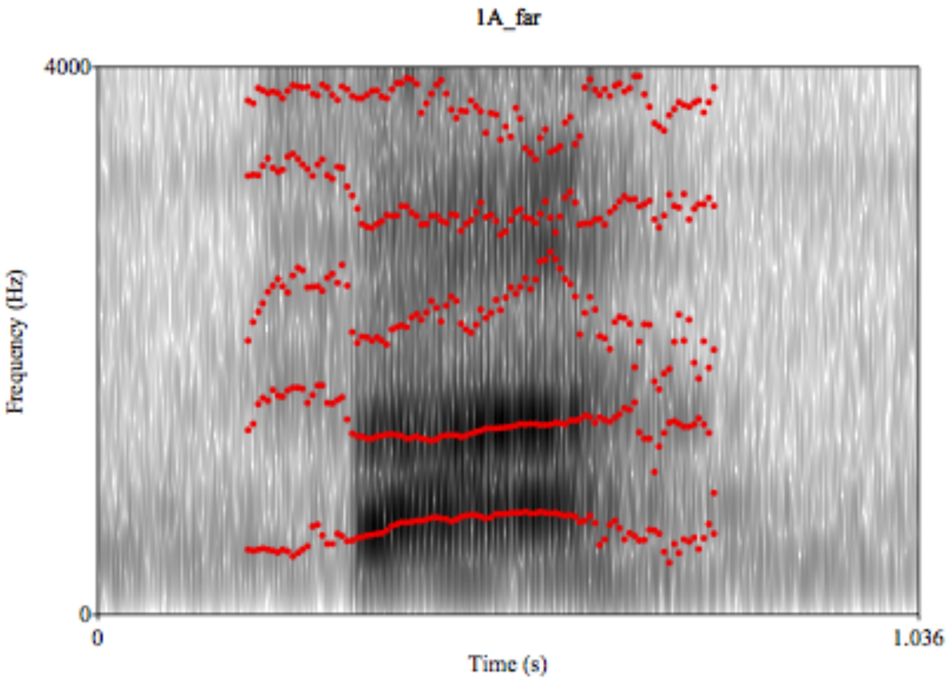


Fig. 2: Spectrogram showing formant contours in 1A far.

The vowel quality of words in lexical set START is of little diversity, with F1 ranging from 642-743 Hz and F2 from 1338-1410 Hz. This leads to the assumption that the vowel quality in START is stable and concentrated within a relatively restricted area.

The duration of the vowel in START-words was also measured. The result shows that the duration of this vowel varies from 0.15-0.30 ms (*marvellous - bar*).

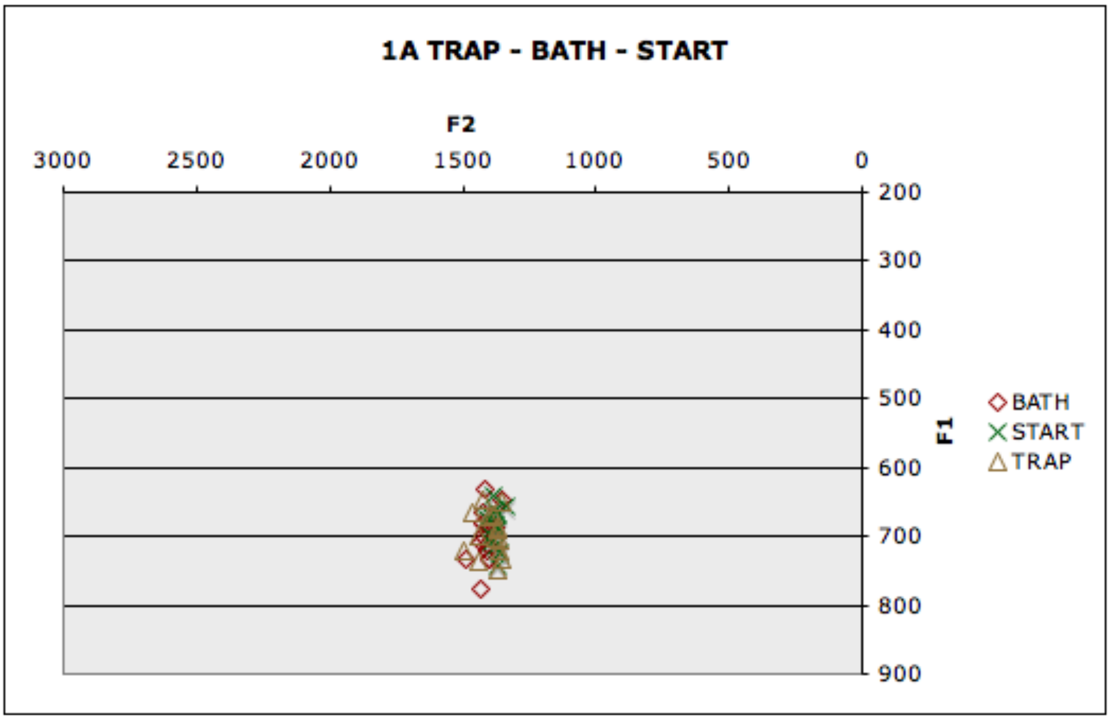


Fig. 3: The distribution of quality in TRAP-BATH and START for 1A.

D) FOOT

Based on the preliminary analysis, the vowel quality of words belonging to the lexical set FOOT appeared to have the expected close mid and rounded quality of /ʊ/. There was, however, some variation. Particularly the vowels in *full*, *wolf* and *wool* seemed to differ from the rest of the tokens. The fact that /ʊ/ is followed by an /l/ in all three cases may mean that the quality is coloured by the following lateral. Velarization of /l/ is discussed in Ladefoged 2003, where he states that "differences in the frequencies of F2 can be used to quantify the degree of palatalization and velarization in English laterals" (Ladefoged 2003: 145). He presents two spectrograms to show how the F2 varies for the /l/ in *leaf* versus *feel*. The difference in F2 is obvious in the lateral, of course, but one can also see how the vowel phoneme is affected. The /i:/ in *leaf* seems to have a longer steady state area, while the /i:/ in *feel* has a glide towards /l/ that affects the duration of the steady state area. It is fair to assume that the effect of an already back vowel may be a velarization of the vowel to shorten the distance of transition from vowel to lateral, thus giving lower F2 values in these vowels.

bosom was pronounced with /ɒ/, and was therefore excluded from the analysis. This may have been a slip of the tongue or a spelling-related mistake, given the fact that no other instances imply that this is a possible pronunciation of FOOT-words. Neither does the historical background of FOOT give /ɒ/ as an alternative pronunciation of FOOT.

The words from lexical set FOOT were analysed in Praat, and for the most part the spectrograms rendered were clear. There was some aeroplane noise in the recording of *bush*, but it did not seem to affect the formant readings.

The formants provided by Praat seemed to support the impression from the auditory analysis of the variation of the FOOT-vowels (see fig. 4). What was particularly interesting was that the F2-values of *full*, *wolf* and *wool* were noticeably lower than for the rest of the selection. For FOOT in general, F1 varied between 465-534 Hz (*pudding-hook*) and F2 between 1102-1346 Hz (*1102-cushion*). The F2 values for the three words in question, however, were as follows: *full* – 946 Hz, *wolf* - 967 Hz and *wool* - 865. (The corresponding F1 values were 497 Hz, 459 Hz and 456 Hz). This concurs with the theory discussed above.

E) STRUT

The preliminary analysis indicated a certain amount of variability in the vowel quality of the STRUT-words. Although the general impression was that of a typical northern pronunciation nowhere near an RP /ʌ/, words like *country, money, number*, *mother* and *stomach* sounded slightly less rounded than for instance the vowel in *butter*.

In the recording of *dull* there was quite a lot of noise from outside. The noise was visible in the spectrogram preceding and following the pronunciation of the word. The programme did, however, produce formant analysis that seemed logical compared to those in the rest of the selection, and the token was therefore considered to be reliable.

The acoustic analysis of STRUT confirmed the impression from the auditory analysis regarding the variability of vowel quality for these words (see fig. 4). It did not, however, support the belief that the particular words listed above stood out in any way compared with the rest of the selection. In fact the only word that did stand out, was *pulse*. In general the F1 range in STRUT was from 475-569 Hz (*butter-mother*), while that of F2 was from 1038-1365 Hz (*hung-stomach*). The values for *pulse*, however, were 479 (F1) and 926 (F2), which is quite similar to the result for the three words that stood out in the analysis of FOOT-words in the preceding section. (See p. 47 above for discussion of velarization of vowels.)

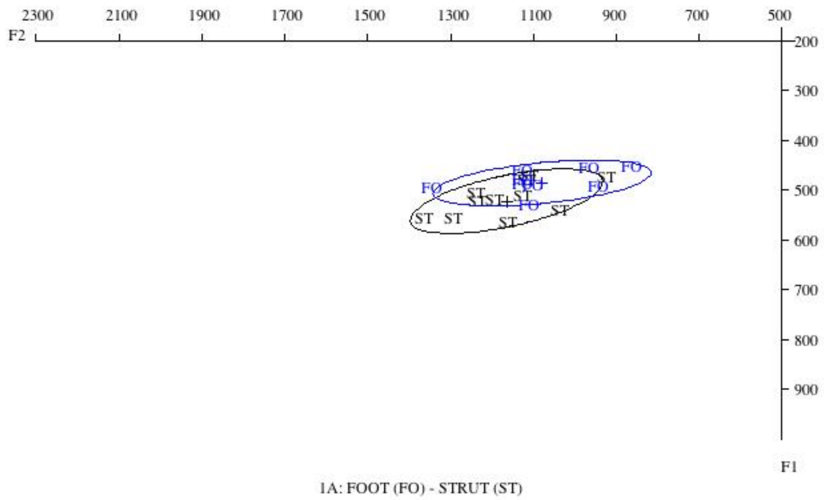


Fig. 4: Vowel plot showing the distribution of FOOT (FO) vs STRUT (ST) for 1A.

4.2.2.2.2 Informant 1B

A) TRAP

The impression based on the auditory analysis was that there was some variation in 1Bs pronunciation of TRAP-words. *Ant*, *badge*, *banner*, and *black* seemed to have a typically ‘flat a’, while for instance *cab* sounded slightly more fronted.

The acoustic analysis proved somewhat problematic. The room used for this recording was the same as for several other interviews where the quality of the recorded material rendered itself very well to acoustic analysis. The conditions during this interview where the same as for the others, but it seems that the recorder has picked up more background noise in this recording than in the others. It may be that the informant spoke in a rather low voice, and that the recording became less clear because of this. For whatever reason, Praat seemed to have some problems with this informant’s voice quality. Finding a clear F1 contour worked well, but in some cases it seemed to struggle with that of F2. One example is the word *jazz* (see fig. 5).

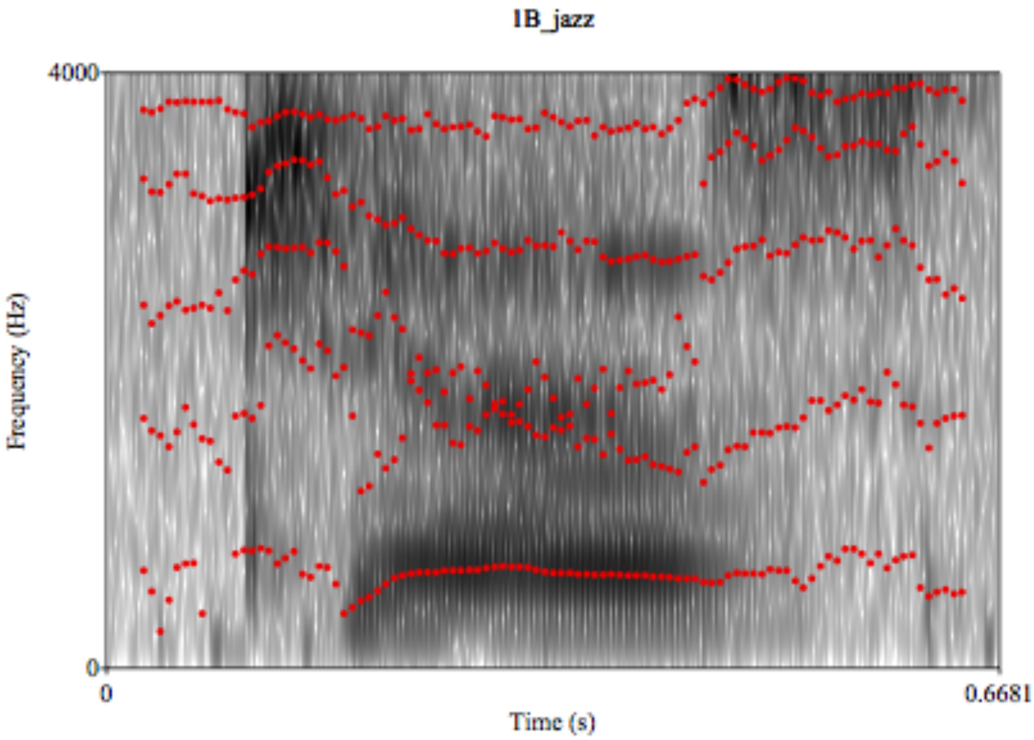


Fig. 5: Spectrogram of jazz *demonstrating unclear F2 contours.*

Finding an area of steady state in these cases based on the formants produced by Praat proved complicated. In this case, where F2 showed no steady state area, the values where extracted by asking for the average formant values for a section at the middle of the vowel. These values were subsequently checked using LPC analysis for the same section. The results from this analysis confirmed the validity of the analysis based on the formant contours provided by Praat:

$F1_1$: 647 Hz $F2_1$: 1586 Hz

$F1_2$: 628 Hz $F2_2$: 1549 Hz

The values did seem to deviate slightly from those of the other TRAP-vowels, with F1 being in the lower end of the F1-scale and F2 placing itself at the higher end of the range of F2-values. The F1-values ranged from 613-819 Hz, and those of F2 from 1254-1595 Hz.

The procedure described above was followed for all the TRAP-words with unclear formant contours, and the LPC analysis verified the results of the first analysis.

The duration of words in lexical set TRAP was also measured. The result of this analysis showed that the duration of TRAP-words varied between 0.10 ms to 0.22 ms.

B) BATH

The auditory analysis seemed to indicate that the BATH-words were pronounce with different variants of /a/. The vowel quality seemed to vary slightly. Particularly the vowel quality in *nasty* sounded different from that of the other words. The duration of the vowels also varied quite a lot. The vowels in *calf*, *can't* and *half* in particular had a longer duration, as would be expected (see discussion p. 38).

All the BATH-words were analysed acoustically in Praat. The problems noted under a) regarding the production of formant contours were present in the analysis of BATH as well, although not as pronounced and not for as many words. For one of them, *castle*, the voice was very breathy and vague, and the decision was made not to use this token due to its relatively low quality. The other two tokens with undecided formant values were analysed using the LPC spectrum. The results of this analysis confirmed those of the first:

$F1_1$: 739/784 Hz $F2_1$: 1431/1371 Hz

$F1_2$: 779/794Hz $F2_2$: 1481/1300 Hz

The F2 formant value calculated for the vowel in '*nasty*' deviated quite a lot from those in most of the other vowels, with 1684 Hz (the second highest being 1530 Hz). This vowel was therefore checked using the LPC spectrum, and the F2-value provided was lower than the original one, at 1315. Whether this was more 'correct' or not is surely debatable, but it did harmonize better with the other F2-values for BATH-vowels in this selection.

Even if the lower F2-value was taken as the correct one, the vowel quality was rather varied for the BATH-words. F1-values spanned from 634-837 Hz, and the span of F2-values went from 1267-1530 Hz.

The vowel duration was measured for the BATH-words, and as suggested in the preliminary analysis the range was relatively broad. The duration varied from 0.06 ms to 0.23 ms, with *half*, *can't* and *calf* not surprisingly accounting for the highest values. What is quite interesting is that the fourth longest vowel duration, found in *dance*, only differs from the third longest by 0.03 ms.

C) START

The preliminary analysis of START gave no great surprises. The vowel quality in general seemed to be varied, but still within what could be labelled as /aː/.

The acoustic analysis of the START-words indicated the same problems concerning the automatically produced formant contours as in the analysis of the two previous sets. One token was so unclear that it did not provide enough data for formants to be calculated, and was therefore eliminated from the analysis. An LPC-analysis was conducted to check the results of the vowels in *cart* and *bark*. The LPC-results for the former did not deviate from those in the first analysis, while the formants provided in the LPC-analysis of the latter were somewhat different:

$F1_1$: 753 Hz $F2_1$: 1366 Hz

$F1_2$: 673 Hz $F2_2$: 1542 Hz

The results from the first analysis harmonized better with the rest of the START-words, with F1 spanning from 621-818 Hz and F2 from 1215-1470 Hz.

Vowel duration was also measured in START. According to the results, the duration varied from 0.22 ms to 0.39 ms.

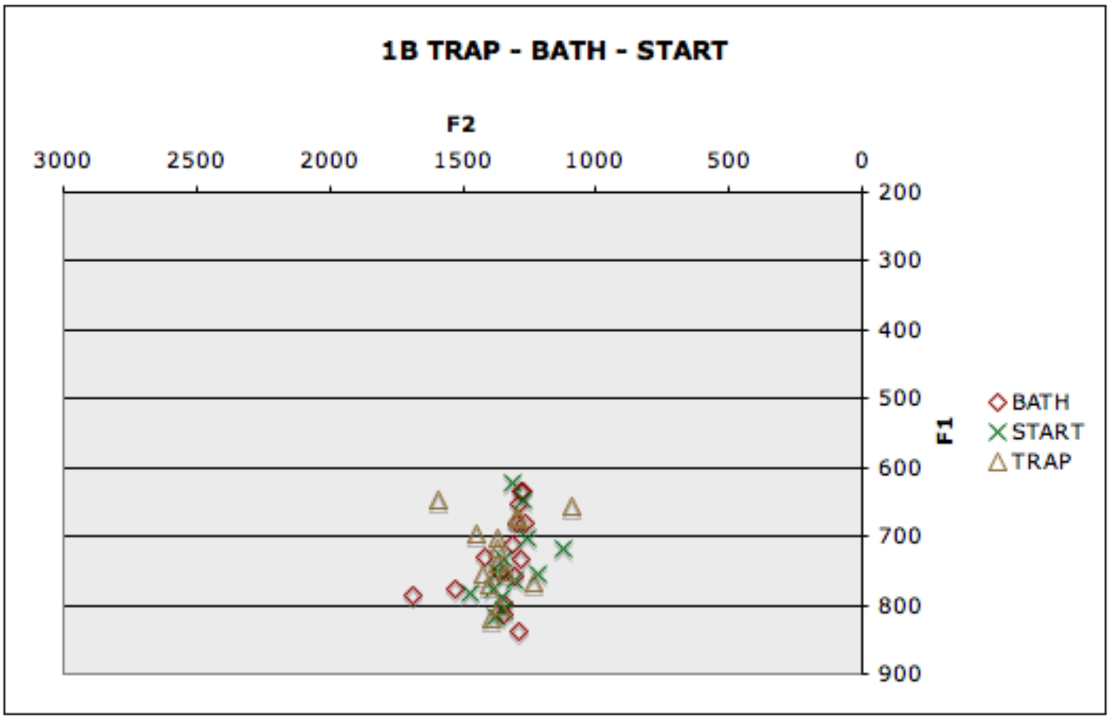


Fig. 6: The distribution of quality in TRAP-BATH and START for 1B.

D) FOOT

The auditory analysis gave the impression that all FOOT-words were pronounced with an /ʊ/ that sounded the same in most of the tokens. Exceptions were *full*, *wolf* and *wool*. As discussed in section d) under 1A above, this difference in quality may be attributed to the following lateral. *bosom* was pronounced with an /ɒ/, and will not be part of the further discussion.

The other FOOT-words were analysed in Praat. The formant values calculated by Praat seemed to indicate that the variation in this vowel was indeed larger than expected based on the auditory analysis. F1-values ranged from 422-542 Hz (*cushion-full*), thus not varying to a great extent, but the range of F2-values was broader, from 982-1276 Hz (*puss-pudding*). The vowels that were perceived to be different in the preliminary analysis did not stand out compared to the other tokens, but they were very close to one another (1103, 1092 and 1062 Hz). (See fig. 7 for plot of the FOOT-vowels)

E) STRUT

In the auditory analysis, the vowel quality of STRUT appeared to be variants of the traditional /ʊ/. There was no indication of an RP-influenced pronunciation, even if the quality did vary to a certain degree.

The acoustic analysis seemed to support the impression from the auditory analysis. For most of the tokens, F1 ranged from 341-478 Hz and F2 from 989-1172. The F1 value of *mother*, however, was calculated to 605 Hz. An LPC-analysis confirmed this result. *stomach* showed a rather high F2 value of 1516 Hz, a result confirmed by the LPC analysis.

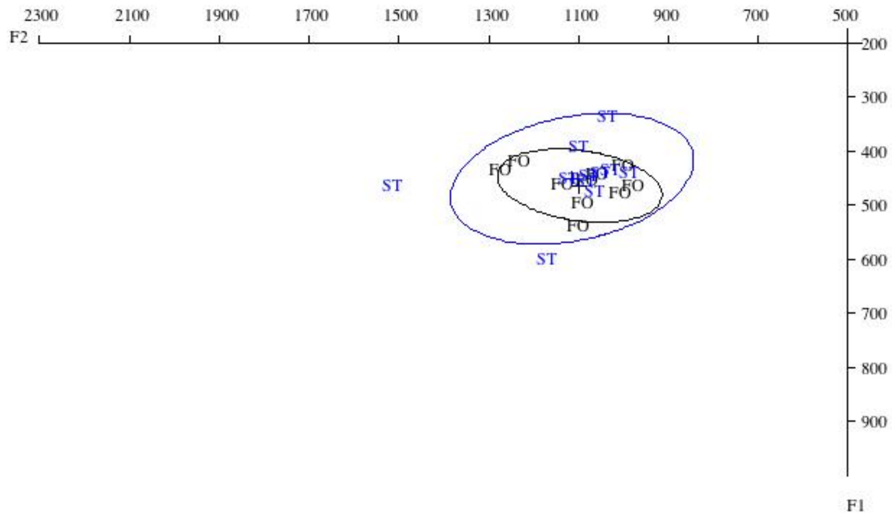


Fig. 7: Vowel plot showing the distribution of FOOT (FO) vs STRUT (ST) for 1B.

As fig. 7 shows, the vowel qualities in FOOT and STRUT-words were quite varied, with the highest degree of variation in STRUT-words.

4.2.2.2.3 Informant 2A

A) TRAP

The preliminary analysis gave the impression that 2A pronounced his TRAP-words with varieties of /a/. In some cases he seemed to use a slightly more fronted variant, for instance in *thank*, which sounded like it had a glide at the end. This could be part of the consonant transition of the following /ŋ/. The vowel in *ham*, on the other hand, sounded like it was slightly more back than the rest of the tokens.

The acoustic analysis confirmed the impression from the auditory analysis. F1 ranged from 628-784 Hz, while the range of F2 was from 1274-1582 Hz. *thank* accounted for the highest F2 value, placing it more to the front than the other words, while *ham* had the lowest F2 value, thus making it more back than the rest.

The duration of 2A's TRAP-words was also measured. The result showed that the vowel duration in TRAP varied from 0.05 ms to 0.9 ms.

B) BATH

Based on the auditory analysis, there did not seem to be much variation in the pronunciation of BATH-words. The quality appeared to be a quite central variant of /a/. Duration was short in all words except *calf*, *can't* and *half*, which seemed to be pronounced with a longer variant of /a/ (see p. 42 for discussion on *calf*, *can't* and *half*).

The acoustic analysis confirmed this impression. F1 varied from 649-748 Hz, while F2 varied from 1289-1465 Hz. This means that 2A had less variation in his pronunciation of BATH-words than of those belonging to lexical set TRAP.

Duration measurements show that the vowels in the 'short' BATH-words vary from 0.05 ms to 0.11 ms, while the vowels in the 'long' words range from 0.19 ms to 0.22 ms.

C) START

The auditory analysis gave the impression that the START-vowel was slightly more back than that of TRAP and BATH, although still an /aː/-quality rather than an /ɑː/.

The acoustic analysis, however, showed that the quality of the START-vowel was quite similar to that of the two previous sets. F1 ranged from 669-777 Hz, while F2 ranged from 1275-1469 Hz.

Vowel duration in START was measured, and ranged from 0.14 ms to 0.3 ms.

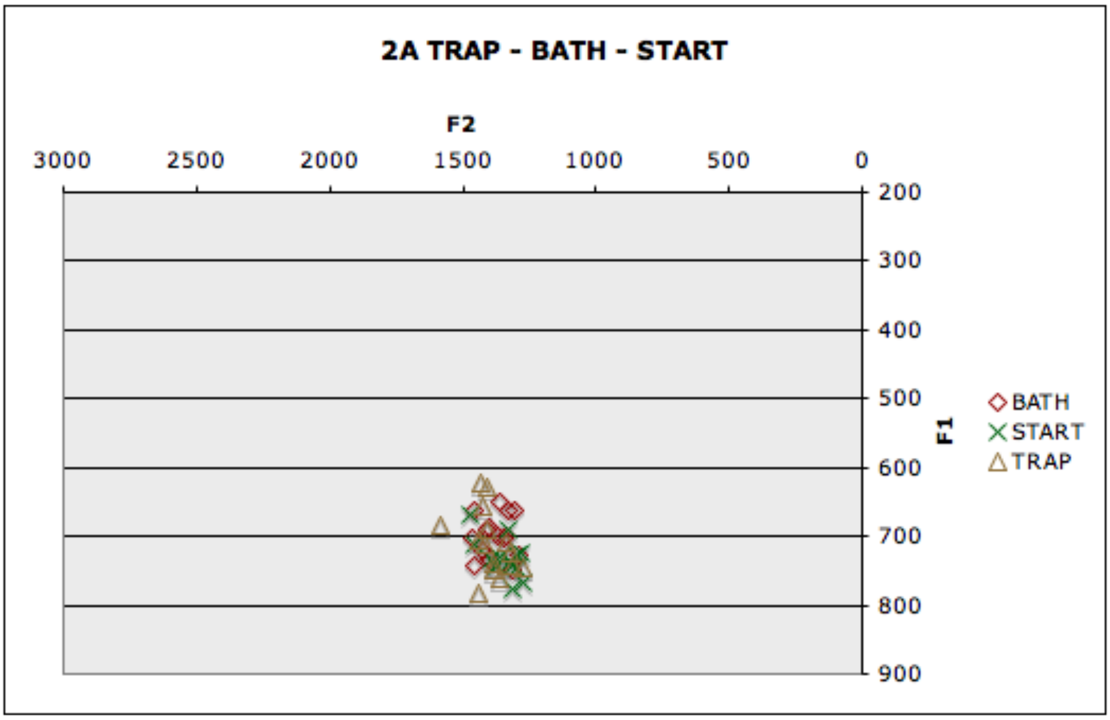


Fig. 8: The distribution of quality in TRAP-BATH and START for 2A.

D) FOOT

The preliminary analysis of FOOT indicated that the quality of the vowel was /ʊ/ for all FOOT-words. The vowels in *full*, *wolf* and *wool* sounded like they might have a slightly different quality than the vowels in the rest of the selection. This may be attributed to the following lateral (see p. 44 for discussion).

The acoustic analysis showed that the vowel quality in FOOT-words actually varied more than believed based on the auditory analysis. F1 values were rather stable, and varied from 420-540 Hz (*butcher-full*). The values of F2, however, varied from 829-1288 Hz (*wolf-cushion*). As noticed in the preliminary analysis, the vowels in *wolf* (829 Hz), *wool* (871 Hz) and *full* (888 Hz) did stand out from the rest of the selection, although *hook* came rather close with its 964 Hz. This may also be attributed to the following consonant, since the velar /k/ may cause a backing of the preceding vowel.

E) STRUT

Based on the auditory analysis, the STRUT-words were perceived to be pronounced with a quality similar to that of FOOT. Two words seemed to differ slightly from the rest. The vowel in *hunt* sounded like it may be slightly more open, while *dull* and *pulse* seemed to be affected by the following lateral.

The acoustic analysis both confirmed and contradicted the results from the auditory analysis. The range of F1 was from 430-567 Hz, that of F2 from 876-1330 Hz. The vowel in *dull* did not stand out in any way. The vowel in *hunt* accounted for the highest F1 value, while *pulse* accounted for the lowest F2 value. Although they both had values that differed from the average in one of the formants, the difference was not staggering.

What could be gathered from the analysis results of FOOT and STRUT was that there was some variation of the vowel quality in both sets, and the variation did not appear to be larger in one than in the other. The results plotted in fig. 9 demonstrated this:

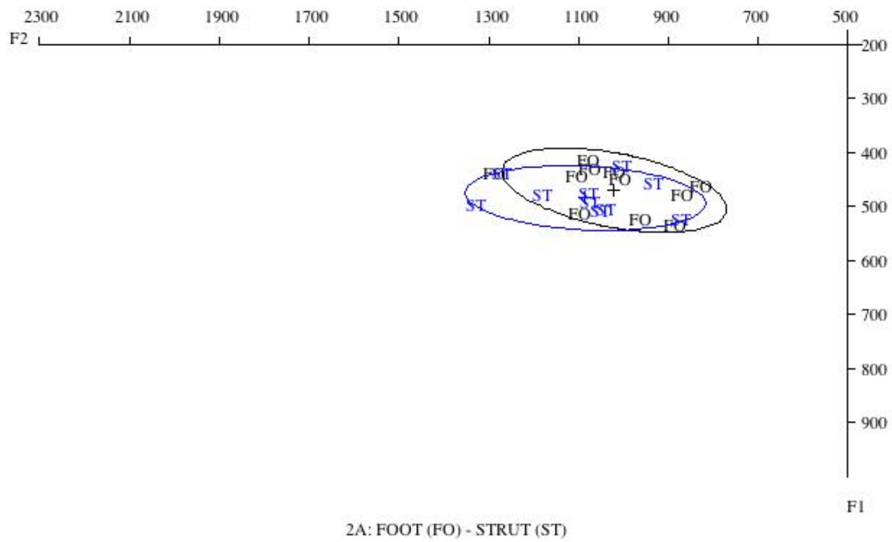


Fig. 9: Vowel plot showing the distribution of FOOT (FO) vs STRUT (ST) for 2A.

What seemed evident, though, was that the variation in STRUT-words were placed slightly more to the centre than that of FOOT-words, although the difference is minuscule.

4.2.2.2.4 Informant 2B

A) TRAP

The preliminary analysis gave the impression that this informant's TRAP-words were all pronounced with /a/, but that the quality varied slightly for some words. *ant*, *dash* and *thank* all seemed to have a more fronted quality than the rest.

The acoustic analysis of this informant was demanding because it was difficult to find steady state areas for the formants. This may have been caused partly by the fact that her voice occasionally had a creaky quality, and partly by the fact that her voice was quite light. The analysis was carried out both using spectrogram and formant contours generated by Praat and by LPC analysis to check the results from the spectrograms with the most unsteady formants.

This analysis showed that there was indeed a high degree of variability in the quality of the vowel in TRAP-words. F1 varied from 667-950 Hz, and F2 from 1233-1516 Hz. The words that seemed to stand out in the preliminary analysis, both *ant* (761 Hz) and *thank* (798 Hz) had relatively low F1 values compared to the rest, while the F2 value of the vowel in *dash* (1481 Hz) was at the higher end of the scale. *man* had the lowest F1 value, while *cab* had the highest F2 value.

Ladefoged stated that "nasal vowels have a wider first formant bandwidth" than oral vowels (Ladefoged 2001: 165). Kent and Read discussed how vowels are influenced by following nasal consonants, stating that features of nasalized consonants such as a low-frequency nasal formant and a broadening of formant bandwidths "are in effect "spread over" to influence the production of the vowel segment" (Kent and Read 1992: 146). The low F1 in *man* may well be attributed to nasalization, given the fact that the vowel is both preceded and followed by a nasal consonant.

The duration of the TRAP-vowels was measured, showing a range from 0.10 ms to 0.17 ms.

B) BATH

The auditory analysis gave the impression that most BATH-words were pronounced with more or less the same quality of short /a/, except for *calf*, *can't* and *half* for which the quality was perceived to be the same, but with longer duration. The /l/ in *class* was pronounced as [ɫ] rather than [l], and this seemed to influence the following /a/.

The acoustic analysis showed that the BATH-vowel had a quite wide range for this speaker. F1 ranged from 768-989 Hz (*answer*-*nasty*), while F2 ranged from 1157-1678 Hz (*class*-*France*). The low F2 value in *class* may have been caused by the preceding [ɫ], which appeared to be rather elongated.

Duration measurements of the BATH-vowels showed that duration varied between 0.03 ms (*class*) and 0.20 ms (*calf*).

C) START

The START-vowel appeared to be pronounced with a vowel quality close to those of TRAP and BATH, and with some variation. *far* and *scarf* both sounded like their quality was slightly more open than the rest of the tokens in this set.

Once again, the acoustic analysis showed a larger degree of variation than what was expected based on the auditory analysis. F1 ranged from 816-925 Hz (*scarf-cart*) and F2 from 1175-1629 Hz (*heart-harsh*).

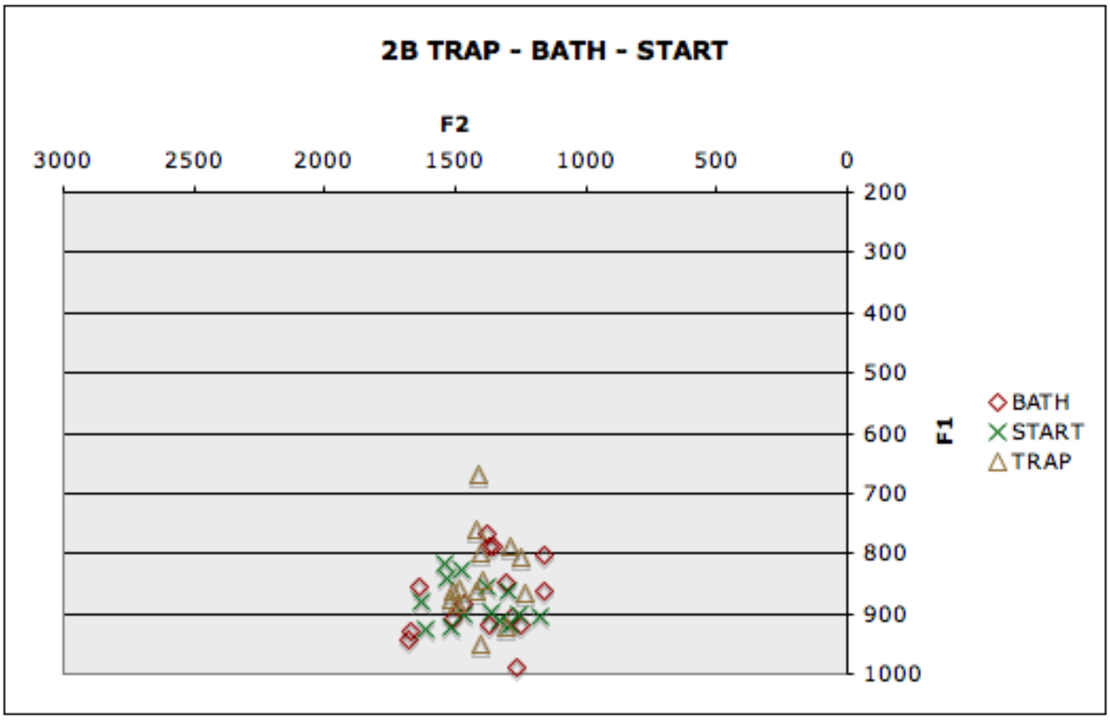


Fig. 10: The distribution of quality in TRAP-BATH and START for 2B.

D) FOOT

According to the preliminary analysis of the tokens, all FOOT-words were pronounced with an /ʊ/, with a small range of variation in quality.

The results of the acoustic analysis showed more variety in the pronunciation of FOOT than what was expected based on the auditory analysis. F1 varied from 480-649 Hz (*butcher-cook*), while F2 varied considerably from 946-1375 Hz (*wolf-pudding*). The low F2 value in *wolf* may be attributed to the following lateral, as mentioned earlier (p. 44). The same effect did not seem to be present for *full* and *wool*.

E) STRUT

The preliminary analysis did not indicate that STRUT was pronounced with a vowel quality that differed greatly from that of FOOT for this speaker. The acoustic analysis, however, proved otherwise. F1 varied from 482-620 Hz (*stomach-cup*), while F2 ranged from 1027-1628 (*budge-stomach*). The low F1 in *stomach* may be attributed to the following nasal, an effect of coarticulation discussed earlier. The same effect may explain the high F2 value of the same token, because the increase in bandwidth may also affect F2 and F3 (Ladefoged 2001: 165).

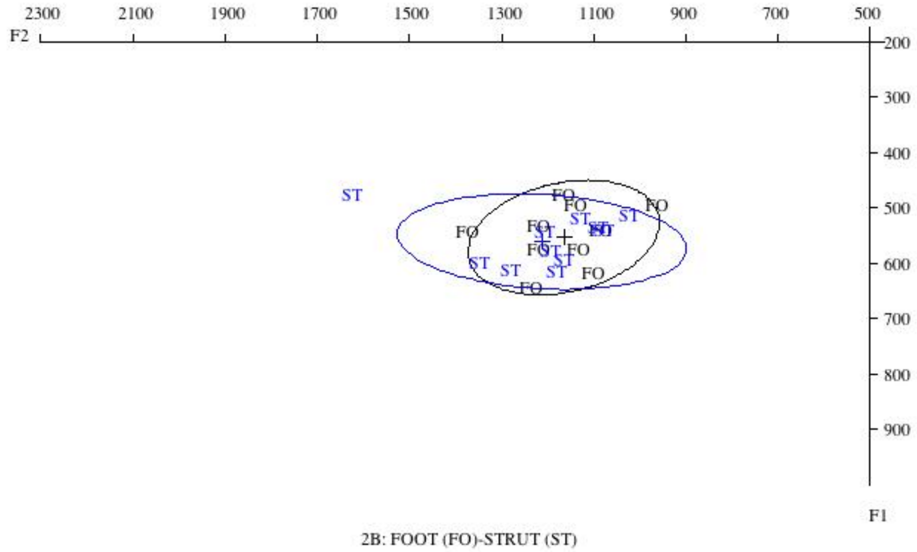


Fig. 11: Vowel plot showing the distribution of FOOT (FO) vs STRUT (ST) for 2B.

What could be deduced by the analysis of the vowels in FOOT and STRUT for speaker 2B was primarily that the variation in vowel quality for both lexical sets was considerable, as shown in fig. 11 above. It was also evident that the variation in STRUT was greater in regard to F2, thus giving more back but also more central variants than for FOOT. This concurred with what has been said about the use of other qualities such as /ə/ instead of /ʊ/ particularly in STRUT-words (see Wells 1982: 352).

4.2.2.2.5 Informant 3A

A) TRAP

Based on the auditory analysis, all 3A's TRAP-words sounded as if they were pronounced with a rather centralised /a/. The vowel in *ham* seemed to have longer duration than the other tokens.

The acoustic analysis indicated that the pronunciation of TRAP-words was very varied for this informant. As discussed above, some of this variation may be attributed to the following nasal (p. 55). The spectrograms showed quite clearly that this informant had a strongly nasalized vowel in words where the vowel was followed by a nasal, such as in *ant*, *banner*, *ham*, *hand*, *hang*, *man* and *thank*. The F1 values for these vowels were generally rather low, ranging from 507-605 Hz. The other tokens had F1 values ranging from 624-794 Hz and F2 values from 1118-1681 Hz. One token stood out with an F1 value noticeably higher than that of the rest: for *dash* the programme generated an F1 of 970 Hz and an F2 of 1472 Hz. The F1 value seemed very high, and because of this the formants were removed and the values were picked manually from the spectrogram. These results (F1: 766/F2: 1113) seemed more reasonable, although the F2 was somewhat low compared to the F2s of the other tokens.

The duration of the TRAP-vowels varied between 0.08 ms to 0.26 ms, and as noted in the preliminary analysis, *ham* had the longest duration. It is worth noticing, however, that this informant had rather long durations in other TRAP-words as well, particularly in *jazz* (0.23 ms) and *badge* (0.20 ms).

B) BATH

All BATH-words seemed to be pronounced with an /a/, even though there seemed to be some variation in vowel quality. In most words the vowel was short, but the duration was longer in *can't*, *calf* and *half*.

The acoustic analysis proved that there was indeed great variation in the BATH-vowel qualities of 3A. Based on the formants generated by Praat, F1 varied between 415-959 Hz (*nasty*-*giraffe*), while F2 varied between 1172-1688 Hz (*path*-*can't*). An LPC analysis was conducted for all of the extremes, and for most of them the results closely matched those of the formant analysis. For *nasty*, however, the results from the LPC analysis differed, giving F1 658 Hz and F2 1278 Hz.

The durational measurements showed that BATH-words had a vowel duration ranging from 0.04 ms - 0.25 ms.

C) START

Based on the auditory analysis, the vowel quality in START sounded slightly varied, but all tokens seemed to have a central or perhaps even slightly fronted quality.

The acoustic analysis showed that there was variation in the quality of the START-vowel, with F1 ranging from 530-996 Hz (*bark*-*Charles*) and F2 from 1077-1548 Hz (*sharp*-*farm*). Because of the relatively large span, the extremes were re-analyzed using LPC spectrum. For *bark* the programme could not find F1 at all, but for *Charles* the LPC analysis gave F1 877 Hz and F2 1074, thus giving a more 'reasonable' F1 and a F2 that came close to that of the first analysis (1115 Hz). The reanalysis of the two F2 extremes gave results that supported those of the first analysis.

The duration of the vowel in START-words varied between 0.15 ms – 0.31 ms.

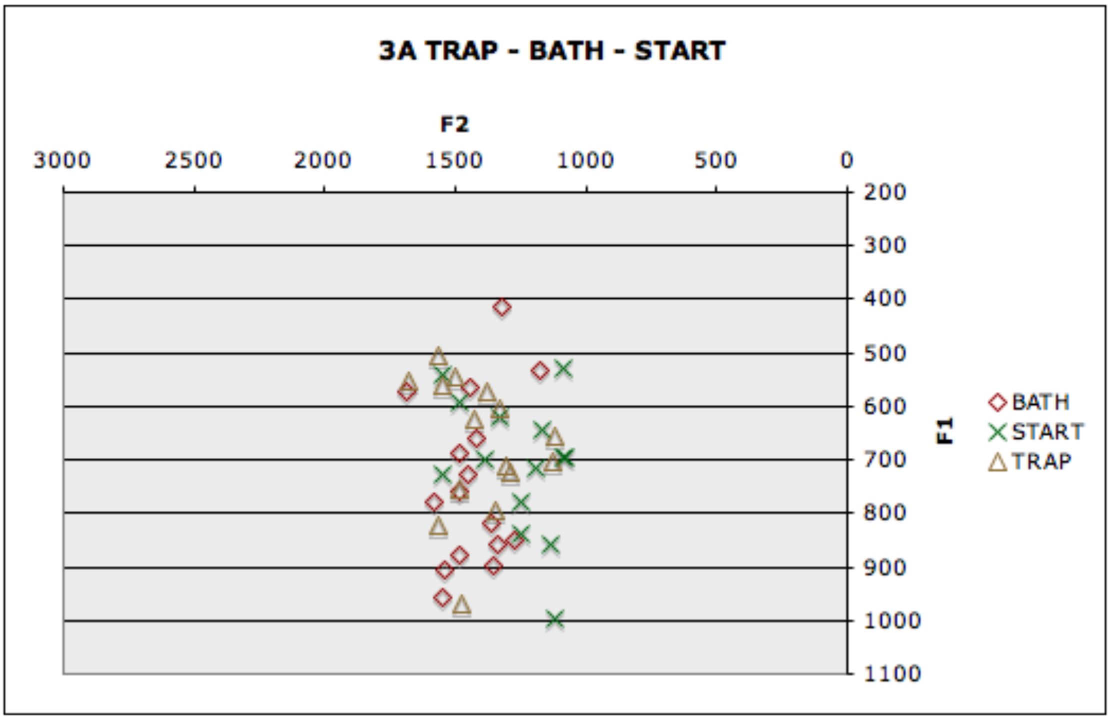


Fig. 12: The distribution of quality in TRAP-BATH and START for 3A.

D) FOOT

The impression from the auditory analysis was that all FOOT-words were pronounced with the expected /ʊ/, except for *bosom* which was mispronounced and therefore not part of the following discussion. There seemed to be some variation in the words *full*, *wolf* and *wool*, and as discussed earlier this may be related to the following lateral (p. 44).

The acoustic analysis showed that the variation in vowel quality was larger than the preliminary analysis indicated. F1 varied between 443-532 Hz (*butcher* and *wool-cook* and *puss*) and F2 between 881-1217 Hz (*wolf-cushion*). The formant values of *wolf* and *wool* were quite similar (for *wolf* the values were F1: 456/F2: 443, for *wool* they were F1: 443/F2: 872), and the formant values of *full* were also quite close (F1: 485/F2: 910).

E) STRUT

Based on the preliminary analysis, the STRUT-words all seemed to be pronounced with a rounded /ʊ/-quality.

The acoustic analysis showed that there was some variation in the quality of the STRUT-vowel, but that this variation strongly resembled that of FOOT. F1 varied between 422-531 Hz (*dull-blood*) and F2 varied between 931-1352 (*dull-blood*). The low formant values in *dull* may be caused by the following lateral, as discussed earlier.

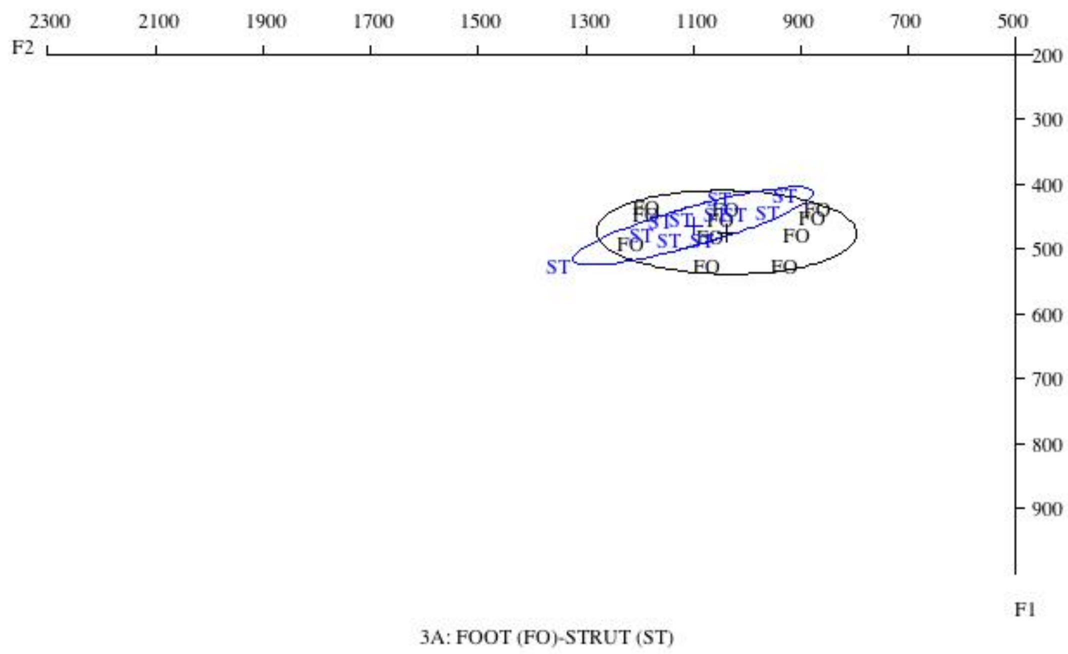


Fig. 13: *Vowel plot showing the distribution of FOOT (FO) vs STRUT (ST) for 3A.*

As shown in fig. 13 above, both FOOT and STRUT had varying vowel qualities, the most central being that of *blood*. Because there was some variation in vowel quality for both lexical sets, and because this variation to a great extent happened within the same area, there was no indication that this speaker moved towards a more 'RP-influenced' pronunciation in STRUT-words.

4.2.2.2.6 Informant 3B

A) TRAP

The preliminary analysis indicated that 3B pronounced her TRAP-words with a rather fronted vowel, which sounds not as central as /a/, yet not as fronted as /æ/.

The acoustic analysis of this informant was difficult at times, because Praat seemed to have trouble finding her formants. For most tokens credible formants were found, and whenever there was doubt an LPC analysis was conducted as a means of control. For *thank*, however, finding reasonable formant values proved impossible. Especially the first formant seemed not to appear, and this may be due to the following nasal, as discussed above. Because F1 could not be determined with certainty, *thank* will not be included in the following discussion.

Even with *thank* out of the picture, the variation of the vowel quality in TRAP is quite large. F1 varies from 576-850 Hz (*hang*-*ant*) and F2 from 1287-1754 Hz (*back*-*dash*). The low first formant in *hang* may be explained with the following nasal (see 4.4.2.2.4 for discussion), although the same effect does not seem to be present for *ant*, *hand* or *man*.

The duration of 3B's TRAP-vowels varied from 0.09 ms – 0.17 ms.

B) BATH

The impression after the auditory analysis was that the BATH-vowels varied slightly in quality. Particularly *calf*, *can't* and *half* were not only longer, as suspected, but also sounded slightly more retracted compared to the rest of the tokens.

The results of the acoustic analysis both concurred with and differed from the first impression. There was quite large variation in vowel quality in the BATH-words, with F1 ranging from 642-873 Hz (*nasty*-*path*) and F2 from 1134-1788 Hz (*path*-*dance*). An LPC analysis was conducted for *nasty* and *path*. For the former the results matched the ones from the first analysis. For the latter F1 deviated little from the formant analysis, while F2 moved from 1134-1300 Hz. This difference would place the token in the middle between the other tokens, thus slightly reducing the degree of variation in vowel quality. Further the acoustic analysis showed that the perceived 'retracted' qualities of *can't*, *calf* and *half* were actually in the middle of the area of variation.

C) START

The auditory analysis indicated that most START-words were pronounced with an /aː/, but that it varied slightly between a central, a slightly more fronted and a slightly more retracted quality. *marvellous* in particular sounded more fronted than the other tokens.

The acoustic analysis showed that there was some variation in vowel quality. F1 varied between 544-863 Hz (*marvellous-bar*), while F2 varied between 1039-1563 Hz (*part-far*). An LPC analysis was done for the extremes, and for the most part the results confirmed those of the first analysis. For *marvellous*, however, the LPC analysis resulted in an F1 of 749 Hz instead of 544 Hz, which is more logical compared to the F1 values of the other tokens. The original F2 was 1418 Hz, while the LPC analysis gave an F2 of 1542 Hz. The difference was not very large, and in any case the result seemed to support the impression that *marvellous* had a slightly more fronted quality than most of the other tokens.

The duration of the START-vowels was measured, and shown to vary between 0.15 ms – 0.30 ms.

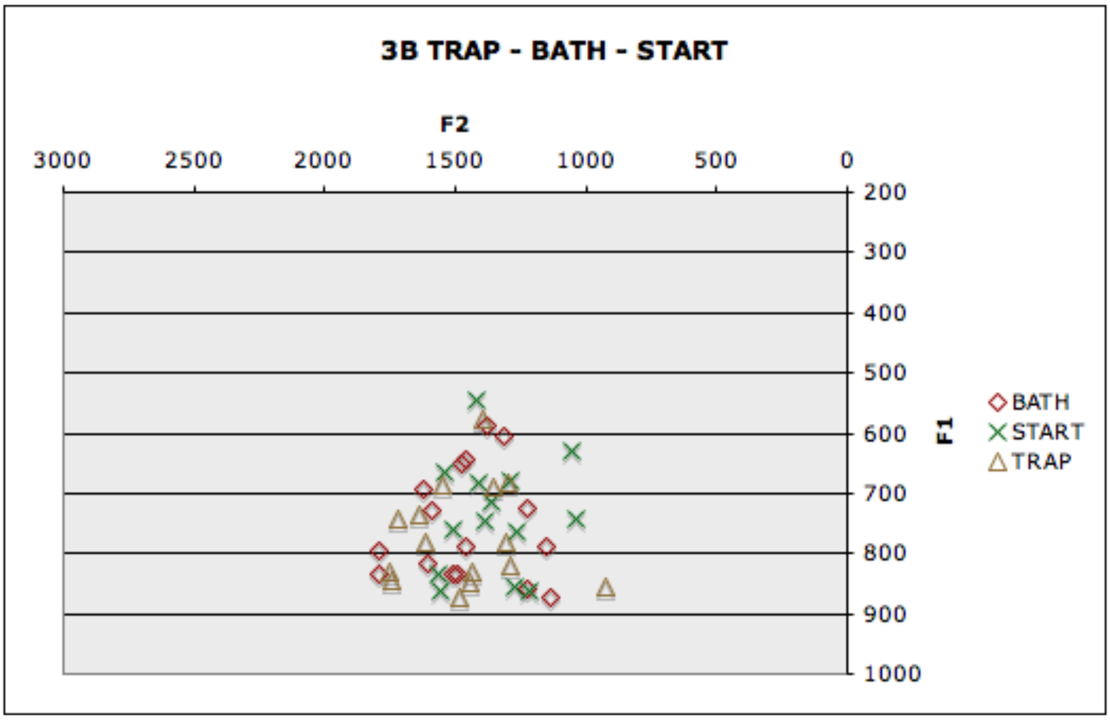


Fig. 13: The distribution of quality in TRAP-BATH and START for 3B.

D) FOOT

After the auditory analysis of FOOT, the impression was that these words were pronounced with a fully rounded, short /ʊ/, with little perceptual variation in vowel quality.

Once again, the acoustic analysis showed more variation than the auditory analysis. F1 ranged from 465-606 Hz (*pudding-full*) and F2 from 935-1644 Hz (*wolf-cushion*). Because the range was not very large between the formant patterns for most of the vowels, only *cushion* was reanalysed using LPC. These results confirmed those of the first analysis. This placed the vowel in *cushion* more to the centre, which could be an example of so-called 'hypercorrection', also discussed by Wells: "By 'the hypercorrect avoidance of [ʊ] in FOOT-words' is meant the use of some opener vocoid not only for STRUT but also for FOOT: pronunciations such as (…) *cushion* [kəʃn ~ kʌʃn]" (Wells 1982: 352). When listening to the pronunciation of the word, however, the vowel seemed to be rounded. A similar phenomenon was described by Torgersen as "FOOT fronting", a trend in south-eastern accents in which the [ʊ] in FOOT is realised as one of three more fronted variants; [ʊ₊], [ɵ] and [ʏ] (Torgersen 2002: 26). Torgersen found this predominantly to be a feature in the speech of young people. For this speaker, the vowel in *cushion* seemed to be the only possible example of such a development, and its central position may therefore be attributed to other factors, such as influence from preceding or following consonant, as Torgersen reported was the case with FOOT-fronting in his south-eastern study. His study showed fronting to be quite common after velar consonants such as /k/ and /g/. (Torgersen 2002: 36).

E) STRUT

The preliminary analysis gave the impression that the vowel quality in STRUT was slightly varied, but still predominantly that of a rounded /ʊ/.

The acoustic analysis showed that F1 varied between 516-633 Hz (*budge-mother*), while F2 varied between 921-1482 Hz (*hung-stomach*). LPC analysis of the four extremes confirmed the results from the first analysis.

What was most interesting was that the formant values for this speaker varied more for FOOT-words than for STRUT (see fig. 14), since the latter is thought to be the most likely subject of change towards a standardized version (Wells 1982: 351-52).

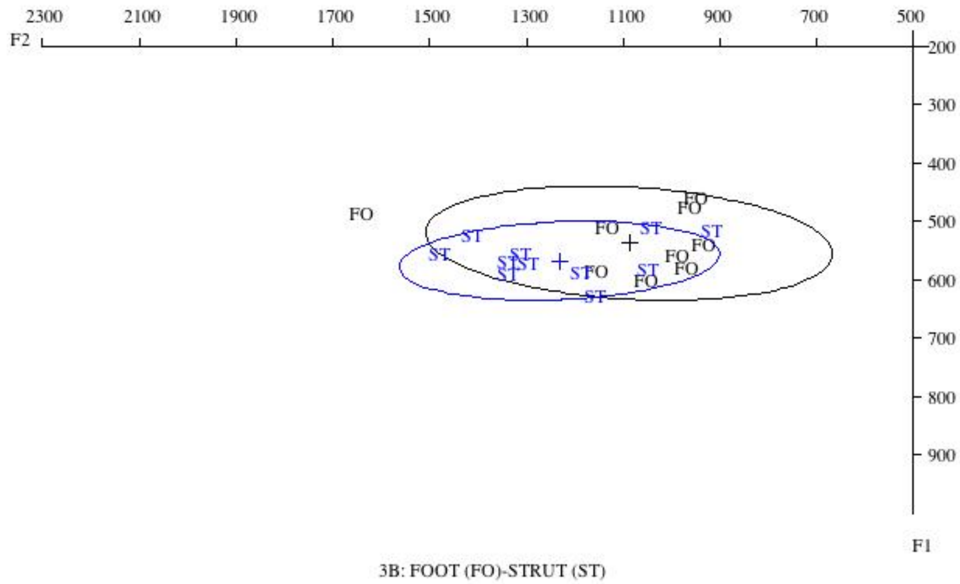


Fig. 14: *Vowel plot showing the distribution of FOOT (FO) vs STRUT (ST) for 3B.*

4.2.2.2.7 Informant 4B

A) TRAP

The impression of 4B's TRAP-vowels was that they were pronounced with a variety of qualities in the vicinity of /a/. Some of them seemed slightly more fronted than others, such as for instance *man*, *tap* and *thank*.

The acoustic analysis of this informant proved somewhat challenging because the programme was unable to project steady formant patterns in many of the tokens. There was, however, sufficient conformity in the results to consider the results reliable. The results more or less confirmed the impression left by the auditory analysis. F1 varied from 637-902 Hz (*hand-back*), while F2 varied from 1112-

1644 (*ham-back*). The relatively low F1 in *hand* and F2 in *ham* may both be attributed to the following nasal, as discussed in 4.4.2.2.4. The high values of both formants in *back* were checked using LPC. The results were more in line with those of the other tokens, with F1 at 870 Hz and F2 at 1564 Hz.

The duration of TRAP-words varied from 0.76 ms – 0.24 ms.

B) BATH

The preliminary analysis indicated that the BATH-words all had variants of /a/. The vowels in *calf*, *can't* and *half* were longer than the other tokens.

The acoustic analysis showed that there was more variation in BATH-vowels than thought initially. F1 varied from 585-902 Hz (*can't-path*), while F2 varied from 983-1663 Hz (*castle-advantage*). As discussed in 4.4.2.2.4, the low F1 in *can't* may be caused by the following nasal, even if other vowels followed by a nasal did not seem to be affected in the same way. LPC analysis of *can't*, *path* and *advantage* gave results that confirmed those of the first analysis, while F2 in *castle* was set at 1670 Hz in the LPC analysis. This difference did not contribute significantly to a reduction of the area of variation, but it did place one more token in the slightly more fronted part of the area.

The duration of BATH-vowels was measured to vary between 0.68 ms – 0.29 ms (*castle – calf*).

C) START

The preliminary analysis did not indicate any large variation in the vowel quality of START-words. The quality seemed to be a slightly fronted /a/.

The acoustic analysis supported the impression from the auditory analysis with regard to showing little qualitative variation. F1 varied from 726-871 Hz (*large-part*), while F2 varied from 984-1341 Hz (*cart-far*). A control analysis using LPC proved difficult, since the programme was unable to conjure an LPC curve that gave clear formant peaks.

The duration of the vowels in START ranged from 0.20 ms – 0.32 ms (*part-sharp*).

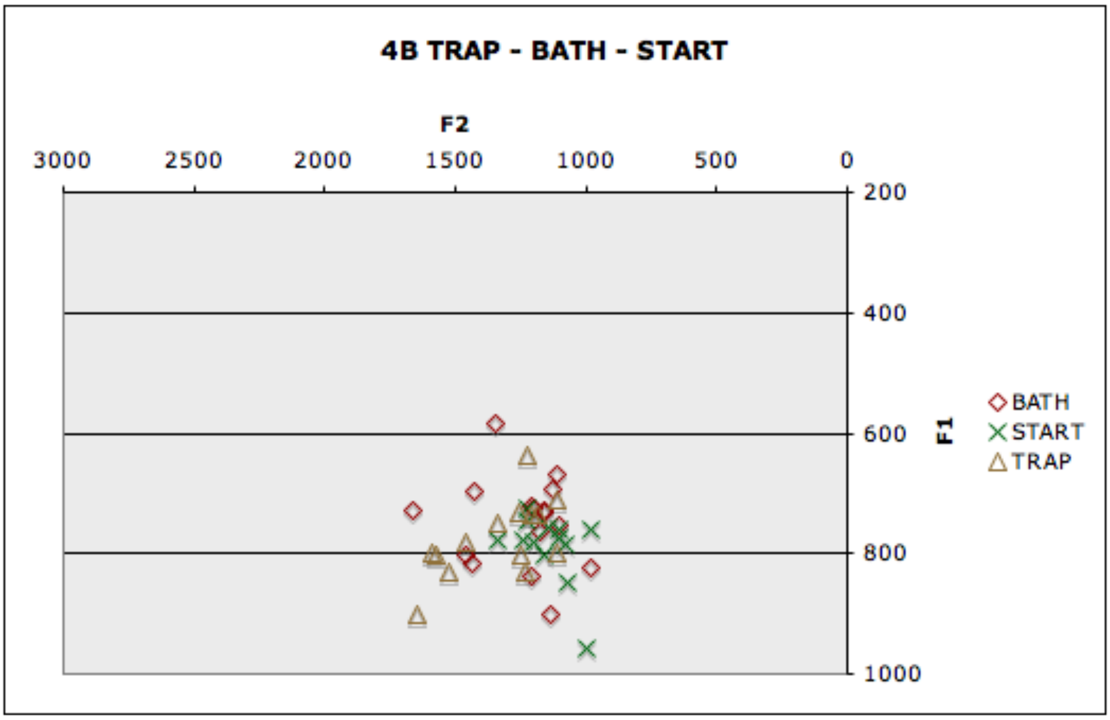


Fig. 15: The distribution of quality in TRAP-BATH and START for 4B.

D) FOOT

The preliminary analysis indicated that the vowel in FOOT was pronounced with a fully rounded /ʊ/, although with a slightly varied quality. For example *full* and *pulse* seemed to have a differing vowel quality than the rest, which may be due to the following lateral. The same effect also seemed to be present for *wolf* and *wool*, although not as much as in the two former.

The acoustic analysis showed that there was some variation in vowel quality, especially in F2. The range of F1 was from 486-650 Hz (*pudding-hook*), while F2 varied between 863-1611 Hz (*puss-cushion*). As was the case with START above, the programme may have had problems placing this speaker's formants in the right places. In the analysis of the spectrogram it seemed to have great difficulties finding F2, thus giving a formant contour that seemed to be all over the place with no lengthy steady state area. This problem was present during the LPC analysis too, where the curve gave a clear formant peak for F1, but nothing for F2. The F2 values used in this analysis were determined by finding the average value of a selected area in the middle of the vowel.

E) STRUT

In the preliminary analysis there was a perceivable variation in the quality of STRUT-vowels. Many of the vowels seemed to have a more centralised, but still rounded quality, for example in *country*, *dull* and *hung*.

The acoustic analysis supported the impression of variability. F1 varied between 544-665 Hz (*budge*-*blood*) and F2 between 735-1524 Hz (*country*-*stomach*). The extremes were reanalysed, but the results did not deviate particularly from the results of the first analysis. The same problem as discussed above occurred when an LPC analysis was attempted.

It seemed that vowel quality in both FOOT and STRUT varied in almost the same way, as shown in fig. 16 below. The difference was that FOOT seemed to vary more in F1 values.

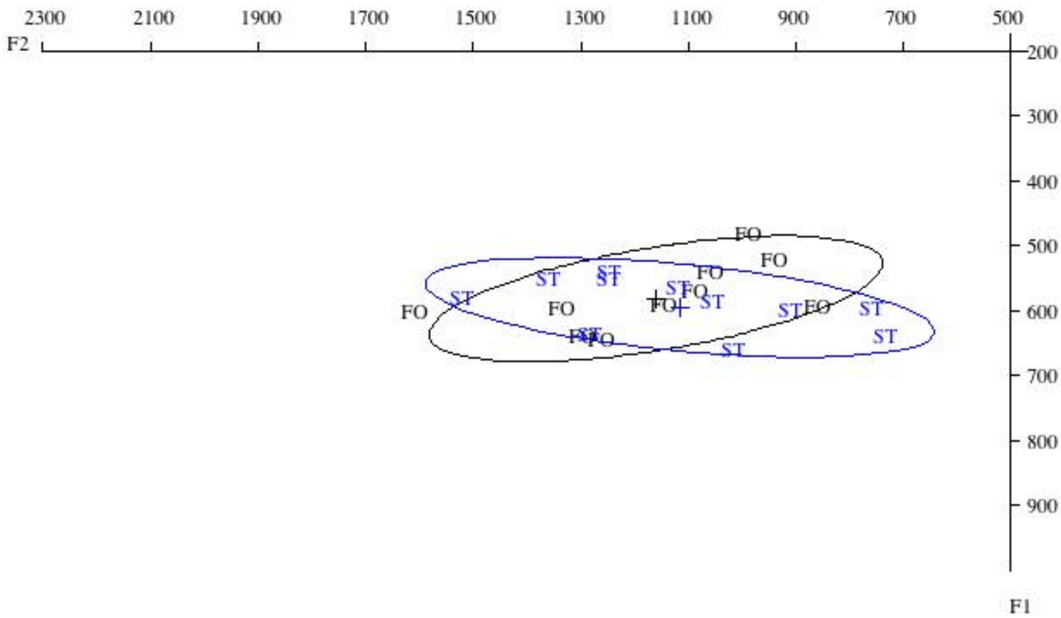


Fig. 16: *Vowel plot showing the distribution of FOOT (FO) vs STRUT (ST) for 4B.*

4.2.2.2.8 Informant 1C

A) TRAP

Based on the preliminary analysis, the pronunciation of the TRAP-vowel seemed to be /a/ with a rather central quality. There did not appear to be much variation in quality, except for the vowels in *hand* and *thank*, which sounded as if they were pronounced with a slightly more fronted quality.

The acoustic analysis showed that there was indeed only little variation in the pronunciation of this vowel. F1 varied between 624-748 Hz (*thank*-*dash*) and F2 ranged from 1242-1387 Hz (*back*-*thank*). The spectrograms were very clear, and the formant contours were even. An LPC analysis was conducted for *thank*, and the results concurred with those of the formant analysis. Because of this and due to the conformity in the results of the first analysis, the findings were not checked further. The somewhat low first formant in *thank* may be attributed to the following nasal (see 4.4.2.2.4 for detailed discussion). The relatively high second formant probably contributed to the impression from the auditory analysis of a slightly more fronted quality in this vowel.

The duration of the vowels in TRAP varied from 0.07 ms – 0.29 ms (*thank*-*cab*).

B) BATH

The preliminary analysis did not indicate large variation in BATH. *calf*, *can't* and *half* varied in length, but there was no noticeable variation in quality.

The acoustic analysis supported the impression from the auditory analysis, with one exception. For most of the BATH-vowels, F1 varied between 665-768 Hz (*nasty*-*daft*) while F2 ranged from 1216-1416 Hz (*half*-*nasty*). The first formant in *answer*, however, was rather low with a value of 608 Hz. A reanalysis was conducted using LPC, but the results rendered matched those of the first analysis. The low F1 may be explained with the following consonant being a nasal, even though the same effect did not seem as prominent for the other tokens that were followed by nasals (see 4.4.2.2.4).

The duration measurement showed that this informant's BATH-words varied between 0.06 ms – 0.40 ms (*castle-half*). *calf* (0.31 ms) and *can't* (0.30 ms) were also longer than the other tokens, as indicated in the preliminary analysis.

C) START

The impression from the auditory analysis of START was that there was no perceivable variation. All the vowels appeared to have the relatively central quality of /aː/.

The impression from the preliminary analysis was supported by the results from the acoustic analysis. The F1 values varied from 646-759 Hz (*marvellous-harsh*) and those of F2 varied from 1232-1403 Hz (*harsh-cart*). Even though the formant values were quite consistent, an LPC analysis was conducted. The results matched those of the first analysis.

The duration of START-words ranged from 0.13 ms – 0.45 ms (*cart-harsh*).

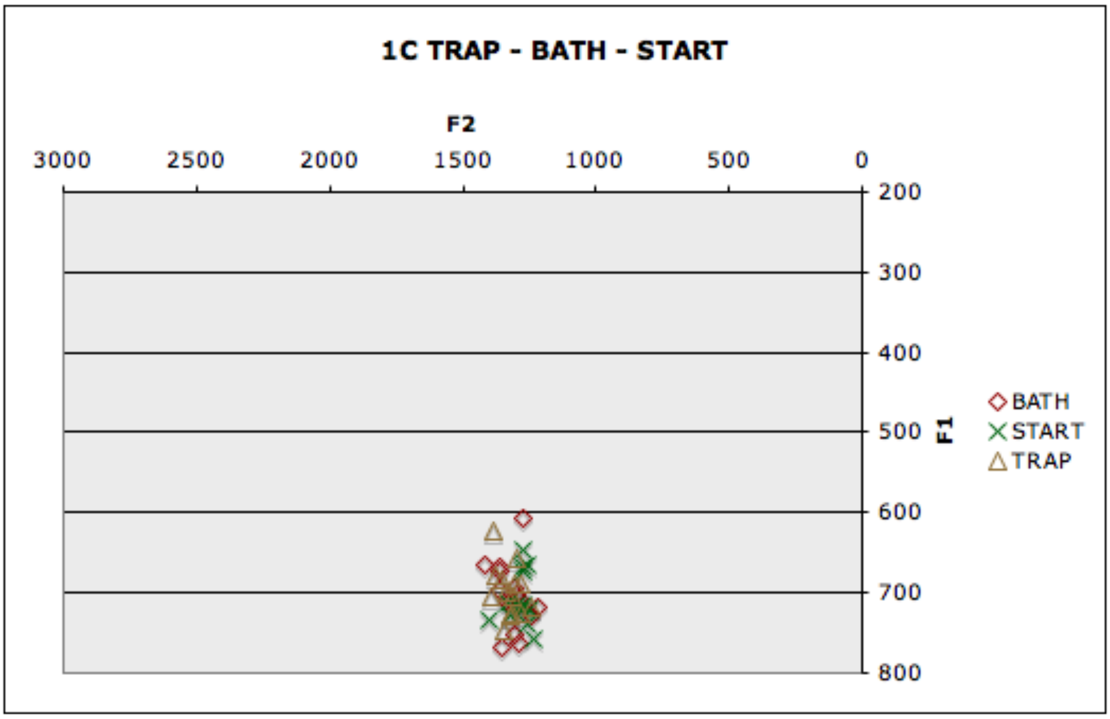


Fig. 17: The distribution of quality in TRAP-BATH and START for 1C.

D) FOOT

This informant's FOOT-vowels sound like they are pronounced with a close-mid [ʊ]. In *cushion*, however, the quality seems more fronted towards the quality of a central, close-mid but still rounded [ɵ].

The acoustic analysis confirmed the impression from the preliminary analysis. F1 in FOOT varied between 383-494 Hz (*cushion-full*) and F2 varied between 809-1143 Hz (*wool-cushion*). *cushion* accounts for the rather large variation in F2, as the second highest F2 was in *butcher*, at 953 Hz.

E) STRUT

The preliminary analysis indicated that the STRUT-vowel was /ʊ/ in all the tokens.

The acoustic analysis showed that the variation of vowel quality in STRUT-words was relatively restricted for this informant. F1 varied between 428-499 Hz (*butter-pulse*) and F1 between 856-1096 Hz (*pulse-blood*). The low F2 in *pulse* could be an effect of the following lateral, which may lead to a backing of the preceding vowel as discussed above. What is interesting here is that the most fronted quality in STRUT is still not as fronted as the most fronted variant of FOOT. This may be related to the preceding consonant /k/, as discussed earlier. It could also be a coincidence and a pronunciation that this informant may not have repeated had he been asked to read this word again.

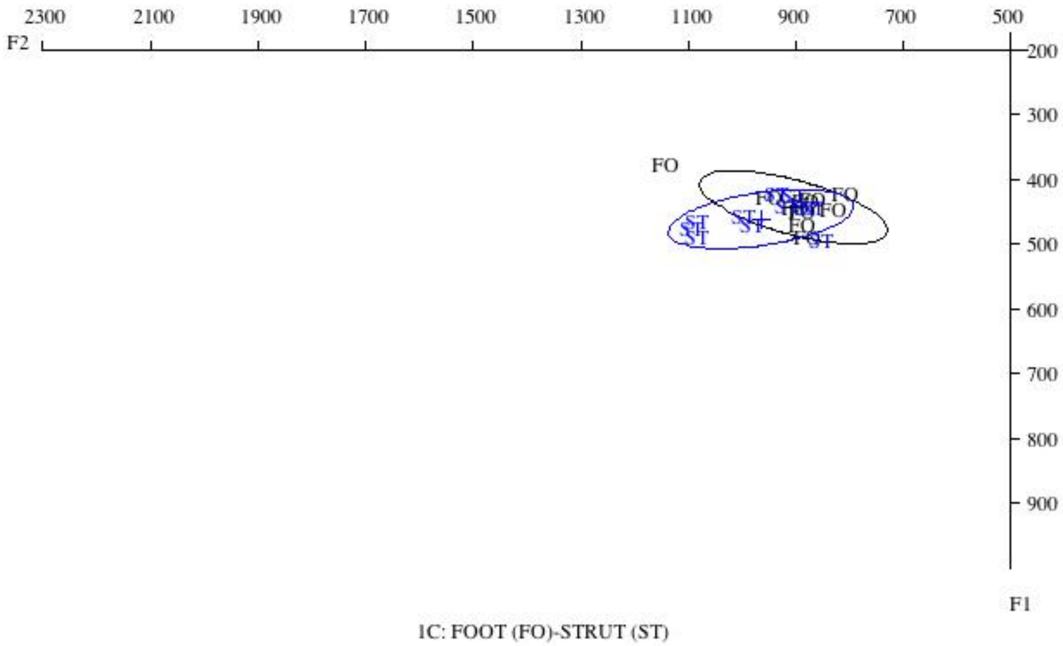


Fig. 18: *Vowel plot showing the distribution of FOOT (FO) vs STRUT (ST) for 1C.*

4.2.2.2.9 Informant 1D

A) TRAP

After the auditory analysis if the vowels in 1D's TRAP-words, the general impression was that she pronounced the words with a slightly more fronted vowel than other informants. Her vowel seemed to be closer to an [æ] than an [a], but not quite as fronted as the former. The vowel quality did not seem to differ greatly between the various words in this lexical set.

The acoustic analysis confirmed that the vowel in TRAP was rather fronted. The variation in openness was rather large, as depicted in the range of F1: 746-951 Hz (*man-hand*). F2 varied between 1446-1609 Hz (*tap-jazz*), thus the difference in frontedness was relatively limited. A reanalysis using LPC was conducted for the tokens with highest or lowest F1 values, while the F2 values were considered sufficiently uniform to render a reanalysis unnecessary. The LPC analysis of *man* gave diverging results compared to the formant analysis. The new values of the two first formants were F1: 575 Hz, F2: 1353 Hz. If these were indeed the correct values, the variation in F1 was larger than indicated by the first analysis.

As discussed in 4.4.2.2.4 under lexical set TRAP, a low F1 value in a vowel followed by a nasal may be attributed to the following consonant. This could be the explanation in the case of 1D's *man*. The fact that the preceding consonant is also a nasal may contribute to increase the nasalization in the vowel, thus greatly influencing the quality in *man*. The same effect obviously did not apply for *hand*, which although followed by a nasal has a much higher F1 value, in fact the highest of all the tokens. The reanalysis of *hand* gave the same values as the formant analysis.

The duration of the vowels in TRAP varied between 0.09-0.16 ms (*ant*-*jazz*).

B) BATH

The vowel quality in 1D's BATH-words sounds slightly less fronted than that in TRAP, although it still sounds as if it belongs acoustically between [æ] and [a]. The vowels in *can't*, *half* and *calf* were longer than the other tokens, which were all short.

As was the case with the TRAP-vowels discussed above, the acoustic analysis showed a rather large variation in the F1 values of the vowel quality in the BATH-words. F1 varies between 666-934 Hz (*castle*-*mask*), while F2 varies between 1355-1628 Hz ('*example*'-'*can't*'). Due to the relatively large variation in both F1 and F2, all four extremes were reanalysed using LPC. The results were almost identical to the original ones, except for the formant values in *example*. The value of F1 and F2 differed by approximately 100 Hz compared with the results of the first analysis, which would place F2 closer to the F2-values of the majority of tokens.

The duration of the vowel in BATH varied between 0.04-0.22 ms (*answer*-*can't*).

C) START

The vowel quality in START sounded like it was slightly more retracted than the qualities of the two previous lexical sets, making it sound closer to an [a] than an [æ].

According to the acoustic analysis, the range of F1 stretched from 652-856 Hz (*part*-*marvellous*), while F2 varied between 1317-1557 Hz (*marvellous*-*bark*). The reanalysis of these tokens showed that the formant values generated through the LPC analysis to a great extent harmonized well with those of the formant analysis.

The measured duration of the vowels in START varied between 0.14-0.33 (*marvellous-far*).

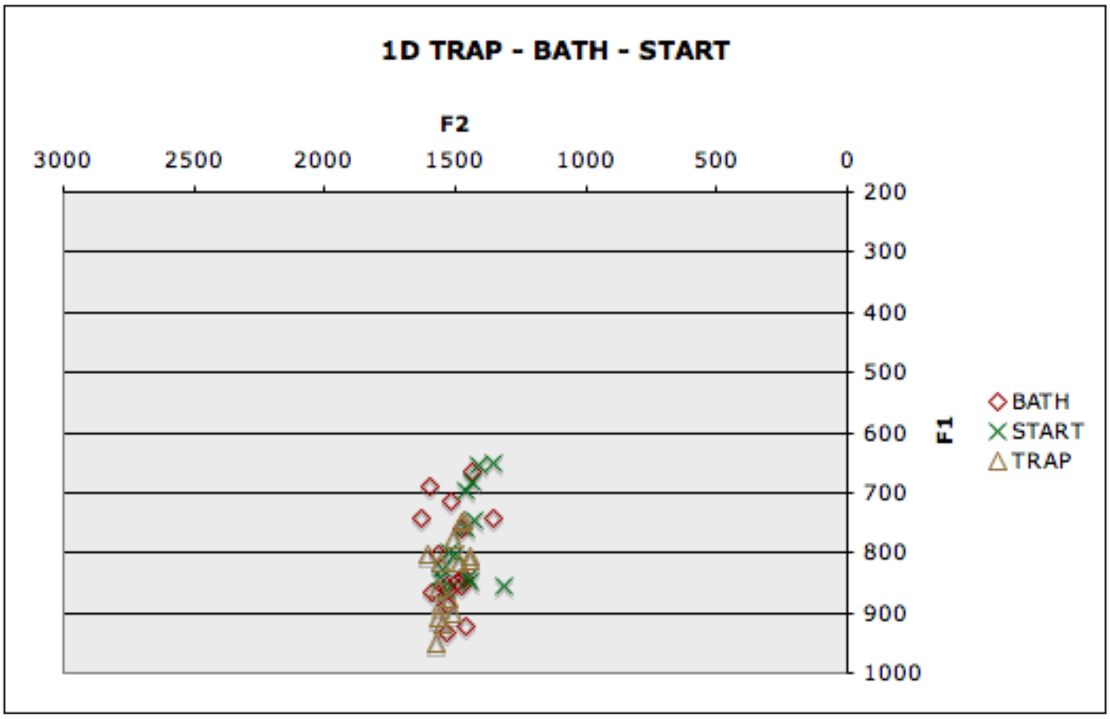


Fig. 19: The distribution of quality in TRAP-BATH and START for 1D.

D) FOOT

The preliminary analysis of the vowel in FOOT indicated that there was some variation in the quality of this vowel. There seemed to be some influence from the following lateral in *full*, *wolf* and *wool* (see discussion under 4.4.2.2.4, d) FOOT for details), and the vowel in *hook* sounded more retracted than the other tokens.

The acoustic analysis showed that the range of F1 was from 395-539 Hz (*cushion-full*) and that of F2 varied between 919-1342 Hz (*wolf-cushion*). The impression of the difference in quality in the three vowels followed by a lateral was confirmed for *wolf* and *wool*, which both had low F2 values (919 Hz and 947 Hz respectively). As shown above, *full* had the highest F1 value, but its F2 value did not stand out from the rest (1102 Hz). The vowel in *hook* did not differ from the other tokens in F1 (485 Hz), but its F2 value was rather low (933 Hz), thus explaining the perceived retractedness of this vowel.

E) STRUT

The impression after the auditory analysis was that although there was some variation in certain STRUT words, most of the tokens were pronounced with a close, back, rounded /ʊ/. In *blood*, *country* and *stomach*, however, the vowel seemed to have a more centralised quality.

The acoustic analysis supported the impression from the preliminary analysis. F1 varied between 480-553 Hz (*butter-hung*), while F2 ranged from 1023-1488 Hz (*hung-stomach*). All the three tokens that were perceivably different stood out in F2 values compared to the other tokens: *blood* (1386 Hz), *country* (1400 Hz) and *stomach* (1488). In comparison, the fourth highest F2 value was that of *dull* (1255 Hz). An LPC analysis was conducted in order to check the results, and for *blood* and *butter* the results were identical to those based on the formants in the spectrograms. Performing an LPC analysis of the other tokens proved difficult. The programme was unable to draw credible formant peaks, probably because of the nasalized quality of the vowels *hung*, *country* and *stomach*.

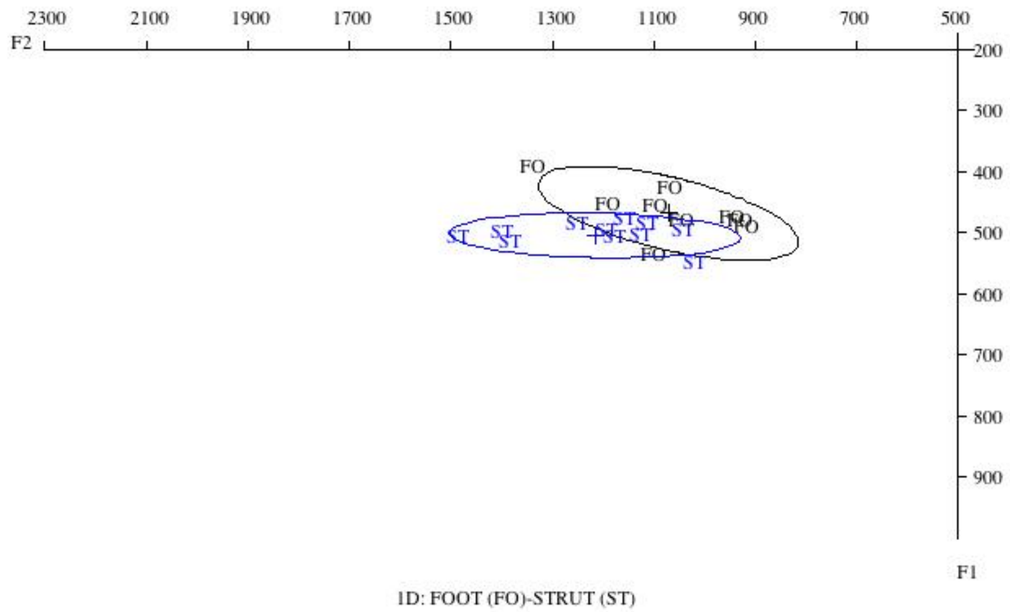


Fig. 20: *Vowel plot showing the distribution of FOOT (FO) vs STRUT (ST) for 1D.*

4.2.2.2.10 Informant 2C

A) TRAP

In the auditory analysis the vowel in the TRAP words did not seem to vary a lot.

The acoustic analysis showed that F1 varied from 651-776 Hz (*jazz-ham*) and F2 varied from 1238-1411 (*back-cat*). The results from the LPC analysis deviated only slightly from those of the formant analysis, and all the LPC results moved towards more uniformity in the formant values.

The duration of the vowels in TRAP varied between 0.12-0.20 ms (*thank-mad*).

B) BATH

The preliminary analysis indicated that the BATH words were pronounced with very homogeneous vowel qualities. *can't*, *calf* and *half* had longer vowel durations than the other tokens. It was noted that this informant had a slightly creaky voice quality in some words.

The acoustic analysis showed that F1 in the BATH tokens varied between 661-736 Hz (*castle-example*) and F2 varied from 1174-1406 (*giraffe-daft*). While the formant contours in the spectrograms were clear and even, the LPC analysis proved more difficult. The four extremes were all checked using LPC, but the programme seemed to have problems identifying F2 in particular. This could be related to his sometimes creaky voice quality. The F1 values from the LPC analyses were almost identical to those of the first analysis. The variation in F1 was not very large in the BATH tokens from this informant, but the range in F2 indicated that the main difference in BATH was related to the front- vs. backness of the vowels rather than variation in closeness. Because of the unsuccessful LPC analysis the formants were removed in *giraffe* in order to investigate whether the formant contours were easily detected manually. After the consonant transition of /r/ the second formant became slightly more vague, but it was possible to detect. The formant value from this manual analysis was 1321, thus making it more similar to the mean value. The more fronted quality of *daft*, however, was confirmed using this approach.

Vowel duration in BATH was measured to vary between 0.05-0.13 ms in the short words. For the rest the duration was 0.21 ms (*calf*), 0.22 ms (*can't*) and 0.24 ms (*half*).

C) START

The vowel quality in START appeared almost unvaried in the preliminary analysis, an impression supported in the acoustic analysis. F1 varied between 642-721 (*Charles-marvellous*) and F2 varied from 1228-1358 Hz (*far-bar*). LPC analyses were conducted for all the extremes, and the results supported those of the first analysis.

The measured vowel durations varied from 0.15-0.32 ms (*marvellous-bar*).

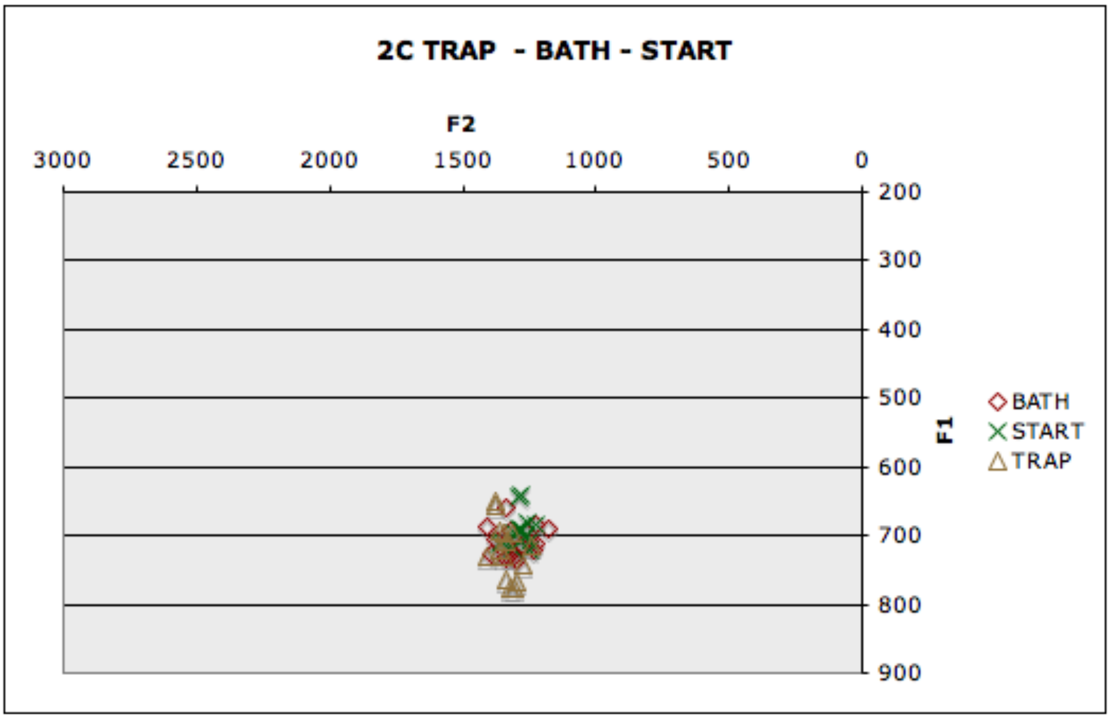


Fig. 21: The distribution of quality in TRAP-BATH and START for 2C.

D) FOOT

In the preliminary analysis *bosom* was discarded from the following discussion due to misreading. The other FOOT words seemed to be pronounced with more or less the same vowel quality.

The acoustic analysis proved that there was no large variation in the pronunciation of FOOT. F1 varied between 374-443 Hz (*hook-put*), while F2 varied between 896-1083 Hz (*wool-cushion*). The lowest F2 values were found in *full*, *wolf* and *wool*. As discussed in 4.4.2.2.1, d) FOOT on page 47 above, this may be a sign of velarization of the vowel because of the following lateral. The results were checked using an LPC analysis, which supported the findings.

E) STRUT

There seemed to be some variation in the pronunciation of the STRUT words. The vowel quality of *country* in particular stood out, as was the case for that of *hung*. The acoustic analysis showed that the pronunciation of STRUT was more varied than that of FOOT above. F1 varied from 386-536 Hz (*butter-mother*) and F2 varied from 935-1374 Hz (*pulse-stomach*). An LPC analysis confirmed the results. A vowel plot of FOOT and STRUT demonstrates the degree of variation:

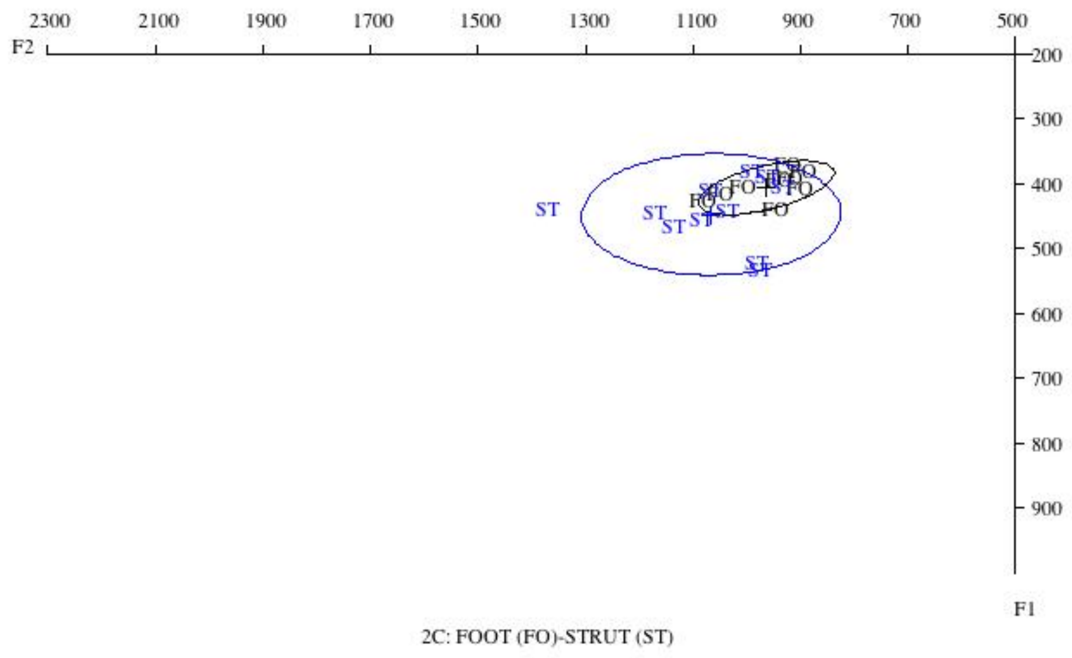


Fig. 22: *Vowel plot showing the distribution of FOOT (FO) vs STRUT (ST) for 2C.*

As shown in fig. 22 above, the pronunciation of STRUT varies more than that of FOOT. The variation in height is quite large, but the variation in backing is even larger. It seems evident that this informant pronounces certain STRUT words with an almost centralized vowel. This seems to correspond with Wells' description of alternative pronunciations of /ʊ/ in STRUT (Wells 1982: 352).

4.2.2.2.11 Informant 2D

A) TRAP

The auditory analysis gave the impression that this informant had a somewhat closer quality in TRAP than most of the other informants. The quality sounded closer to an [æ] than an [a]. There was also some variation in the pronunciation of these words.

The acoustic analysis of this informant proved challenging, because for some tokens the programme did not provide formant contours with clear steady state areas. This may have been due to voice quality, as female voices are often breathier than male voices and therefore more difficult to analyse acoustically (see p. 39 above for discussion). In most cases where formant contours were indecisive, a mean formant value was extracted from the middle of the vowel: When that was impossible the formants were removed and a manual formant determination attempted. The analysis showed that there was great variation in vowel quality in TRAP. F1 varied between 371-862 Hz (*hand*-*tap*) and F2 varied from 1183-1575 Hz (*back*-*cat*). The spectrographic analysis of *hand* was problematic, probably due to the nasalized quality caused by the following nasal. The formant contours were scattered and never found a steady state, and the F1 in particular was clearly affected by the nasalization. An LPC analysis proved impossible, as the programme was unable to detect peaks where F1 should have been located. *Tap* also proved problematic, with no clear peak for F1. The LPC analyses of *back* and *cat* confirmed the results of the formant analysis, except for F2 in *cat*, which was set at 1428 Hz in the LPC analysis. This is probably a more correct value, as it harmonizes better with the other F2 values in TRAP.

The duration of the vowel in TRAP words varied between 0.08-0.23 ms (*cat*-*jazz*).

B) BATH

The auditory analysis indicated some variation in the quality of the BATH vowel. All the tokens were short, except *calf*, *can't* and *half*.

The acoustic analysis showed quite large variation. F1 varied between 561-888 Hz (*advantage-castle*) and 1162-1530 Hz (*daft-answer*). It was clear from the spectrogram and its formant contours that the low F1 in *advantage* was caused by nasalization, as the contour of the first formant barely moved for the transition between the vowel and the following nasal. The LPC analysis of this vowel was unsuccessful, as F1 did not appear at all. This is a known effect of nasalization. The LPC analysis of *castle* gave a slightly reduced F1 value, while the value of F2 remained practically unchanged. The F2 value in *daft* was checked using LPC, and the result confirmed that of the formant analysis. This was also the case for the reanalysis of *answer*.

The duration of BATH words varied between 0.03-0.21 ms (*laugh-can't)*. The other long vowels in BATH had durations of 0.20 ms (*calf*) and 0.17 (*half*).

C) START

In the preliminary analysis, words belonging to the lexical set START seemed to be less varied than those of the previous two sets.

The acoustic analysis confirmed the impression from the auditory analysis. F1 varied between 607-841 Hz (*marvellous-far*) and F2 varied between 1155-1484 Hz (*bark-part*). The LPC analysis did not provide a reliable F1 peak for *marvellous,* while the results for *far* were almost identical to those from the first analysis. The results for both *bark* and *part* confirmed those of the first analysis.

The measured durations in START ranged from 0.11-0.41 ms.

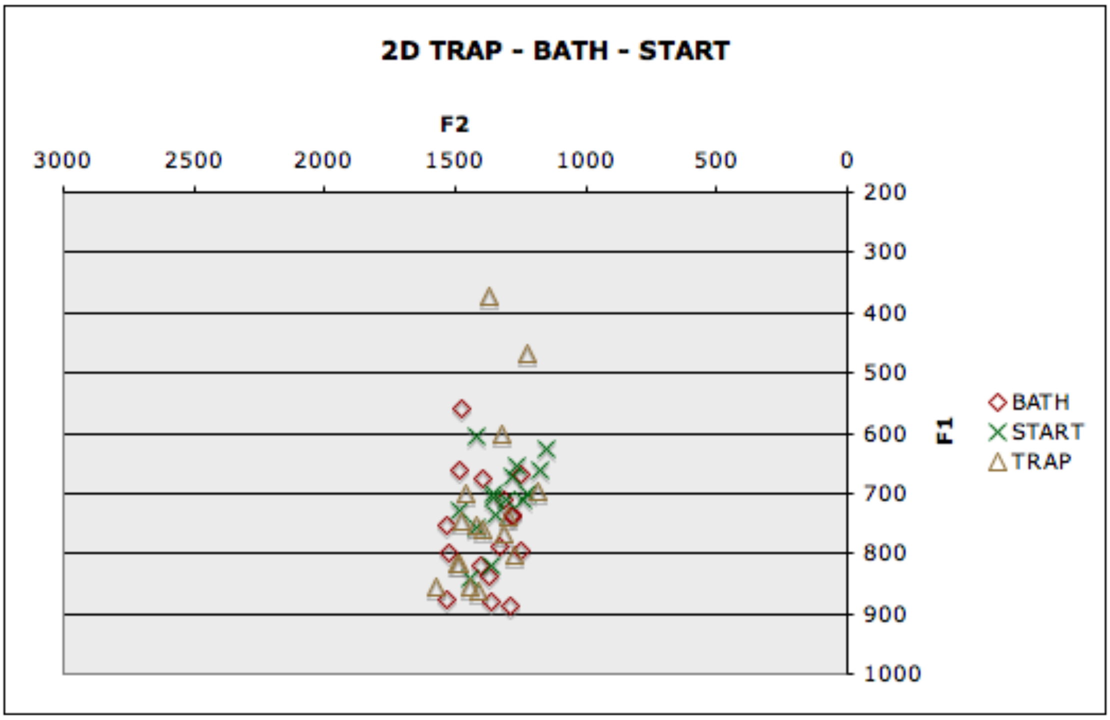


Fig. 24: The distribution of quality in TRAP-BATH and START for 2D.

D) FOOT

The quality in FOOT seemed to vary, particularly in *cook, full, hook, wolf* and *wool.* The acoustic analysis showed that there was indeed variation, with F1 varying between 434-561 Hz (*wool-put*) and F2 from 783-1350 Hz (*wolf-cushion*). An LPC was conducted to check the four extremes, and the results supported those of the first analysis. The rather low value of F1 in *wool* may be caused by the following lateral, as discussed earlier (see p. 44 for details). The F1 in *wolf* was also rather low, at 445 Hz. The fact that *cushion* is pronounced with a relatively centralised quality is interesting, since this could be another example of FOOT-fronting, as discussed on p. 64.

E) STRUT

The preliminary analysis indicated that most of the STRUT words had a more or less rounded quality of /ʊ/. There did, however, seem to be some variation in some words, such as the words in which the vowel is followed by a lateral.

The acoustic analysis showed that the quality of STRUT was slightly less varied than that of FOOT above. F1 varied between 350-554 Hz (*mother-fuss/hung*) and

F2 varied between 913-1403 Hz (*hung-stomach*). An LPC analysis confirmed the values of most of the extremes, but for some reason the programme was unable to generate formant peaks for *fuss*.

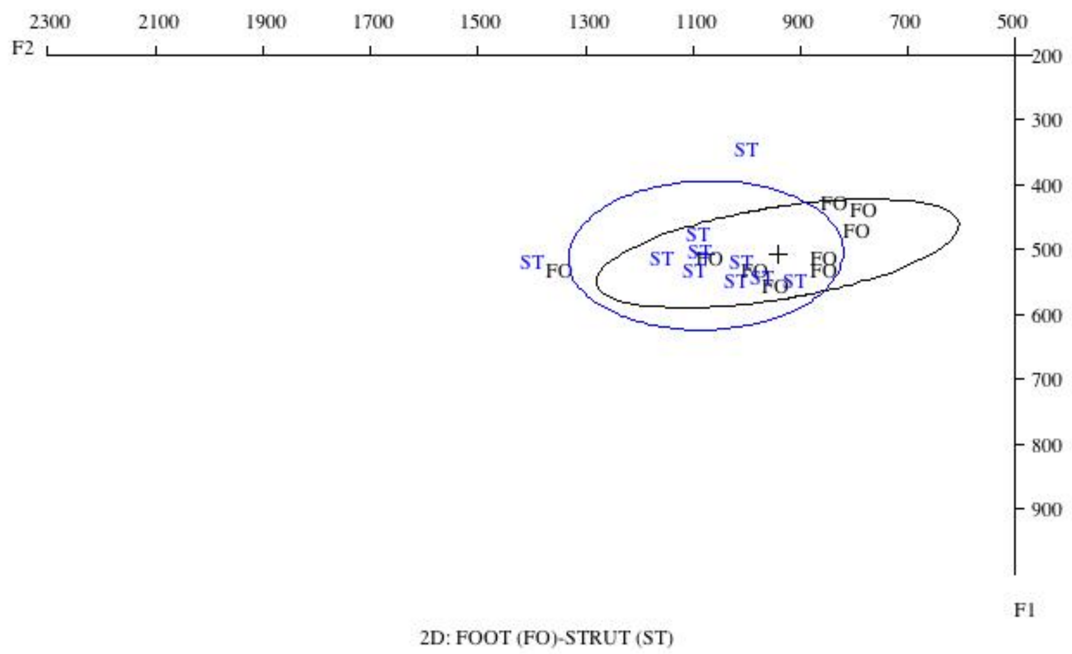


Fig. 25: *Vowel plot showing the distribution of FOOT (FO) vs STRUT (ST) for 2D.*

4.2.2.2.12 Informant 3C

A) TRAP

The preliminary analysis of the vowel quality in TRAP did not seem to indicate a large degree of variation.

In the acoustic analysis the impression of a variation within a relatively restricted area was confirmed. F1 varied between 638-862 Hz (*banner-hand*), while F2 varied from 1176-1434 Hz (*cab-dash*). The reanalysis using LPC gave mostly the same results, except for *cab*, in which the F2 value was reduced to 1104 Hz.

The duration in TRAP was measured to vary between 0.09-0.20 ms (*hang-mad*).

B) BATH

The general impression of the vowels in BATH based on the auditory analysis was that there was some variation. The vowel in *dance* seemed to stand out in particular. The vowels in *calf, can't* and *half* were longer than the other tokens.

The acoustic analysis showed a larger degree of variation than was perceived during the auditory analysis. F1 varied between 540-838 Hz (*nasty-half*) and F2 varied between 920-1549 Hz (*class-can't*). The results were partly confirmed in the LPC analysis, but for *half* the LPC values for both formants deviated strongly from those calculated in the first analysis, giving F1 673 Hz (was 838 Hz) and F2 1096 Hz (was 1332 Hz).

Vowel duration in BATH varied between 0.05-0.26 ms (*advantage-half*).

C) START

The preliminary analysis did not indicate large variation in the START vowel quality.

According to the acoustic analysis, however, there was more variation in the pronunciation of START than perceived during the auditory analysis. F1 varied between 556-780 Hz (*far-farm*) and F2 varied between 1198-1518 Hz (*marvellous-large*). The results of the LPC analysis confirmed some of the findings in the first analysis. For *farm*, however, the first formant peak was too high, with a value of 975 Hz. Based on the fact that the gap between this value and those of all the other tokens is so wide, the LPC analysis of this token was discarded. The formant contours for this token were very stable. A manual check was done, and it seemed to support the original formant values.

The duration of the START-tokens varied between 0.14-0.34 ms (*marvellous-bar*).

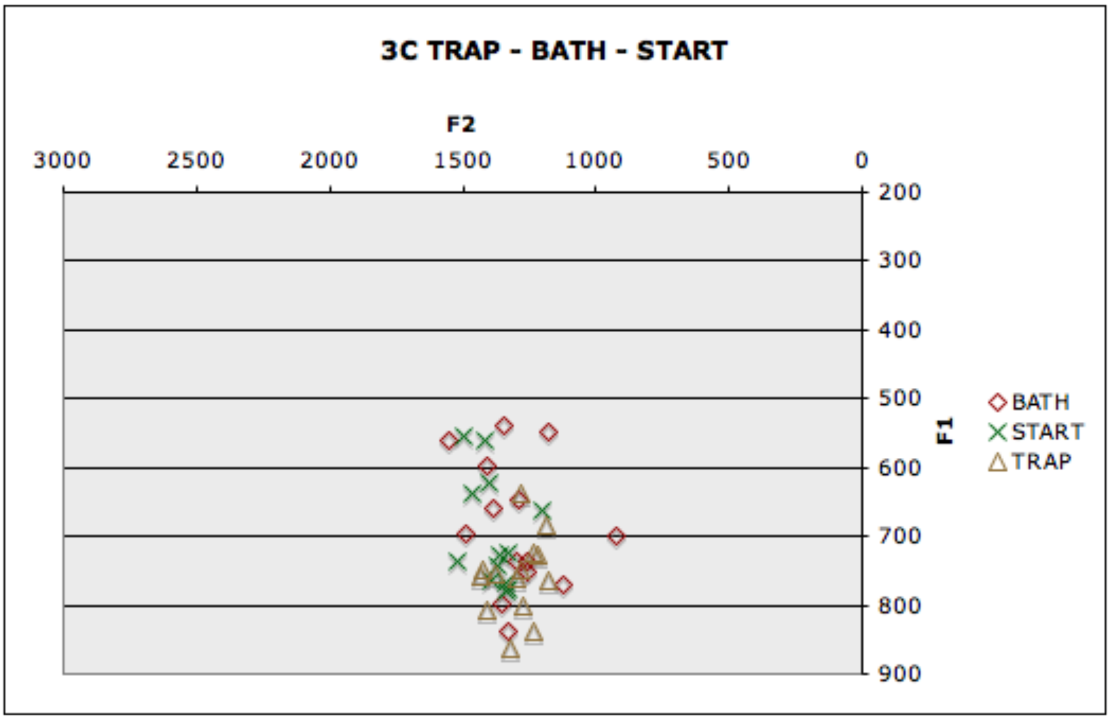


Fig. 26: The distribution of quality in TRAP-BATH and START for 3C.

D) FOOT

The impression after the auditory analysis was that the vowel quality in FOOT did not vary very much for this informant. As has been noted for other informants earlier, the final *–l* in *full*, *wolf* and *wool* seems to influence the vowel quality to a certain extent.

The acoustic analysis showed that there was a rather limited variation in the pronunciation of the FOOT vowel. F1 varied from 365-440 Hz (*cushion-hook*) while F2 varied from 744-1116 Hz (*wool-cushion*). The LPC analysis confirmed the results of the first analysis. The rather low F2 in *wool* may be attributed to the following lateral, as discussed on p. 44.

E) STRUT

The auditory analysis of STRUT left the impression that there was not much variation in this lexical set.

The acoustic analysis showed that F1 varied between 362-449 Hz (*butter-mother*), while F2 varied from 833-1072 Hz (*fuss-blood*). The LPC analysis of *butter* did not work, because for some reason the programme did not generate a formant peak for F1. The second formant was quite close to the value from the first analysis, but the fact that no F1 was visible reduces the reliability of the F2 level as well. The LPC analysis was therefore discarded. The other LPC results concurred with those of the first analysis.

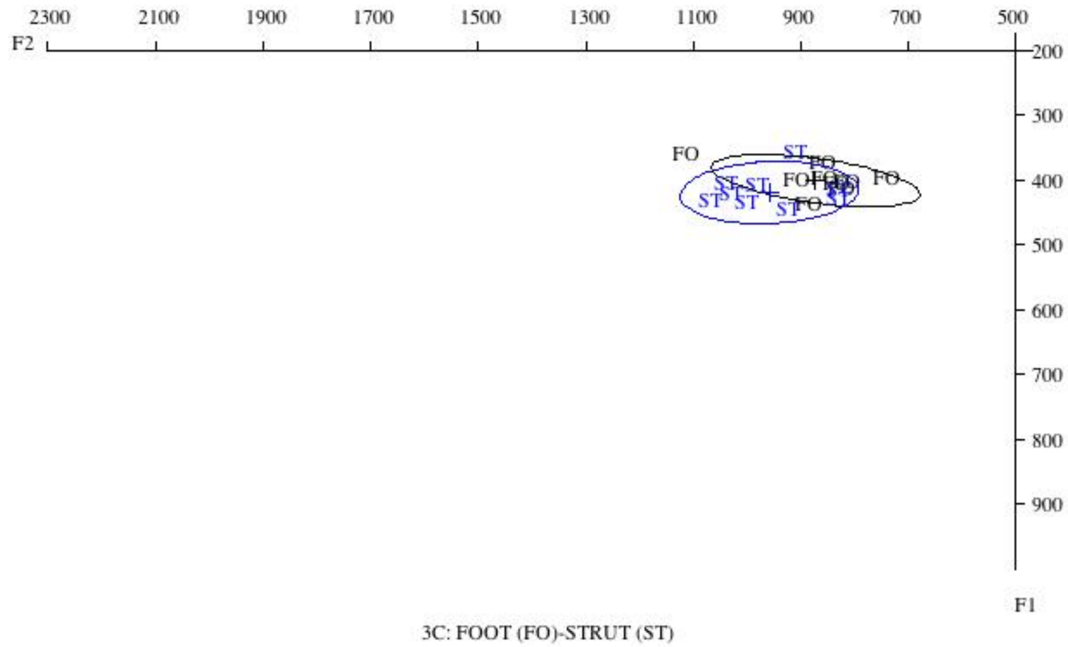


Fig. 27: *Vowel plot showing the distribution of FOOT (FO) vs STRUT (ST) for 2D.*

4.2.2.2.13 Informant 3D

A) TRAP

Based on the preliminary analysis the vowel quality in TRAP sounded slightly more fronted than the traditional [a], although not as fronted as [æ]. There did not appear to be a high degree of variation in the vowel quality.

According to the acoustic analysis the impression of a rather limited variation was correct. F1 varied between 693-785 Hz (*mad-tap*), while F2 was more varied with values from 1117-1571 Hz (*mad-hang*). The LPC analysis confirmed the formant values from the first analysis.

The duration measured in TRAP-words varied from 0.09-0.20 ms (*cat-cab*).

B) BATH

The vowel quality in BATH seemed to be the traditional /a/. There did not appear to be a wide variation in the pronunciation, but *calf, can't* and *half* were pronounced with a longer vowel.

The acoustic analysis showed that there was only a slight variation in the BATH vowel quality. F1 varied between 694-838 Hz (*can't-giraffe*) and F2 varied from 1106-1435 Hz (*castle-can't*). The only token which gave reliable results in LPC was *castle*, where the formant values were close to those of the first analysis. The other LPC curves generated improbable peaks for either F1, F2 or both. The fact that the vowel in *can't* is followed by a nasal may affect the formant values (see p. 55 above for discussion). As mentioned earlier, the mere voice quality of female informants may also cause problems for acoustic analyses, because the programme have problems finding the right formant tracks (see p. 39).

The vowel duration in BATH varied between 0.06-0.23 ms (*answer-half*). The durations of *calf* and *can't* were 0.21 ms and 0.20 ms.

C) START

The vowel quality in START seemed slightly more varied than in the two previous lexical sets.

The acoustic analysis showed that there was some variation in the pronunciation of START. F1 varied between 691-871 Hz (*heart-cart*), while F2 varied between 1105-1566 Hz (*marvellous-scarf*). The LPC analysis of *heart* gave only slightly different values compared to those of the first analysis. The same was the case for *cart*, while the reanalysis of both *marvellous* and *scarf* confirmed the results from the first analysis.

The duration in START varied from 0.16-0.34 ms (*marvellous-far*).

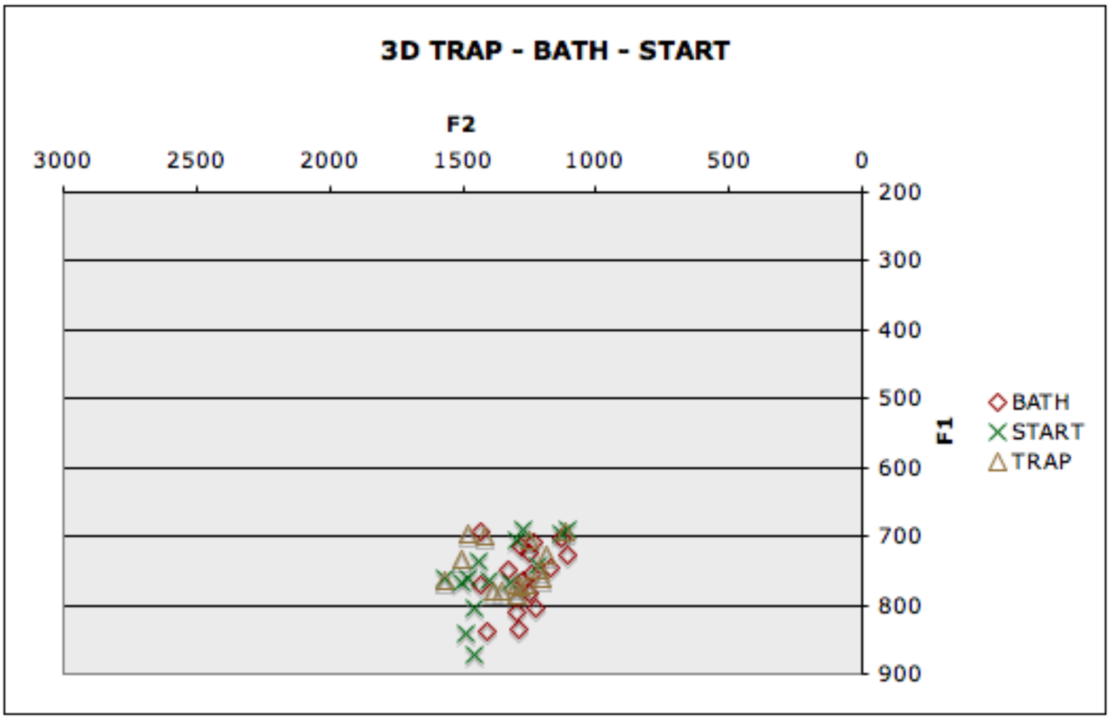


Fig. 28: The distribution of quality in TRAP-BATH and START for 3D.

D) FOOT

The auditory analysis did not indicate large variation in the pronunciation of FOOT. There did seem to be a slight velarization of the vowels followed by a lateral (see p. 44 for discussion).

The acoustic analysis showed that there was some variation in the vowel quality. F1 varied between 456-630 Hz (*wolf-hook*), while F2 varied between 930-1178 Hz (*wolf-cushion*). An LPC analysis verified these results. The lower F2 value of *wolf* and *wool* (962 Hz) is probably caused by the following lateral. (Velarization of vowels is further discussed on page 44 above.)

E) STRUT

There appeared to be a rather large degree of variation in the vowel quality of STRUT in the auditory analysis. Especially the vowel in e.g. *tongue* sounded more centralized than /ʊ/.

According to the acoustic analysis, the variation in the STRUT-words was indeed quite large. F1 varied from 498-694 Hz (*stomach-cup*), while the range of F2 was rather wide, stretching from 996-1376 Hz (*hung-stomach*). An LPC analysis of *stomach* did not provide credible formant peaks. This may be due to the nasalized quality of this vowel (see p. 55 for discussion). The LPC analysis of *cup* confirmed the result of the first analysis, and the LPC results of *cup* vary only slightly from the first results.

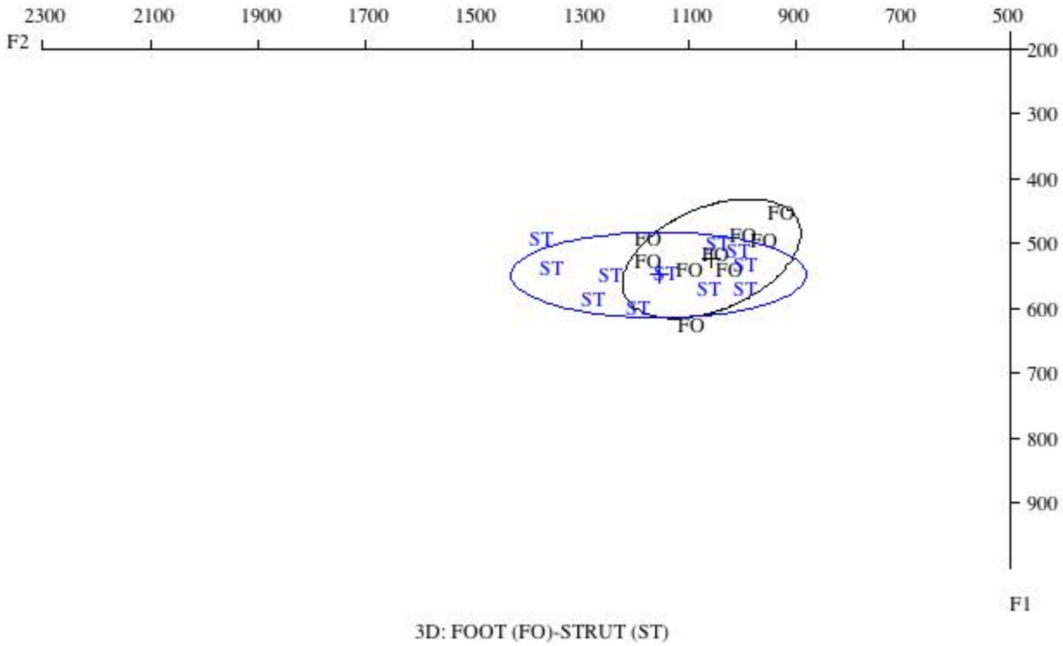


Fig. 29: Vowel plot showing the distribution of FOOT (FO) vs STRUT (ST) for 2D.

4.2.2.3 FACE AND GOAT

As mentioned above, the auditory analysis did not give any indication of a change taking place in the pronunciation of words belonging to lexical sets FACE and GOAT. In order to check this impression, a random selection of tokens from both lexical sets were analysed acoustically. The results of this analysis will be described in the following, using examples from two of the informants – 1A, male informant from age group young and 3B, female informant from age group mid.

The auditory analysis of FACE gave the impression that all the analysed words belonging to this lexical set were pronounced with a long monophthong /eː/. There did, however, seem to be a slight glide towards a more close quality at the end of the vowel in *late* and *mate*, and towards schwa before /l/ in *jail* and *tail*. These glides were taken as part of the consonant transition rather than a sign of diphthongization, both due to the relatively small distance which they covered and to the fact that the glide was only present when the vowel was followed by /t/ or /l/.

Fig. 30 illustrates the distance covered in the glide in six FACE tokens pronounced by informant 1A (1-6). The seventh token is the recorded pronunciation of the FACE vowel in the reference accent, RP. This recording was found on a CD in Ladefoged 2001.

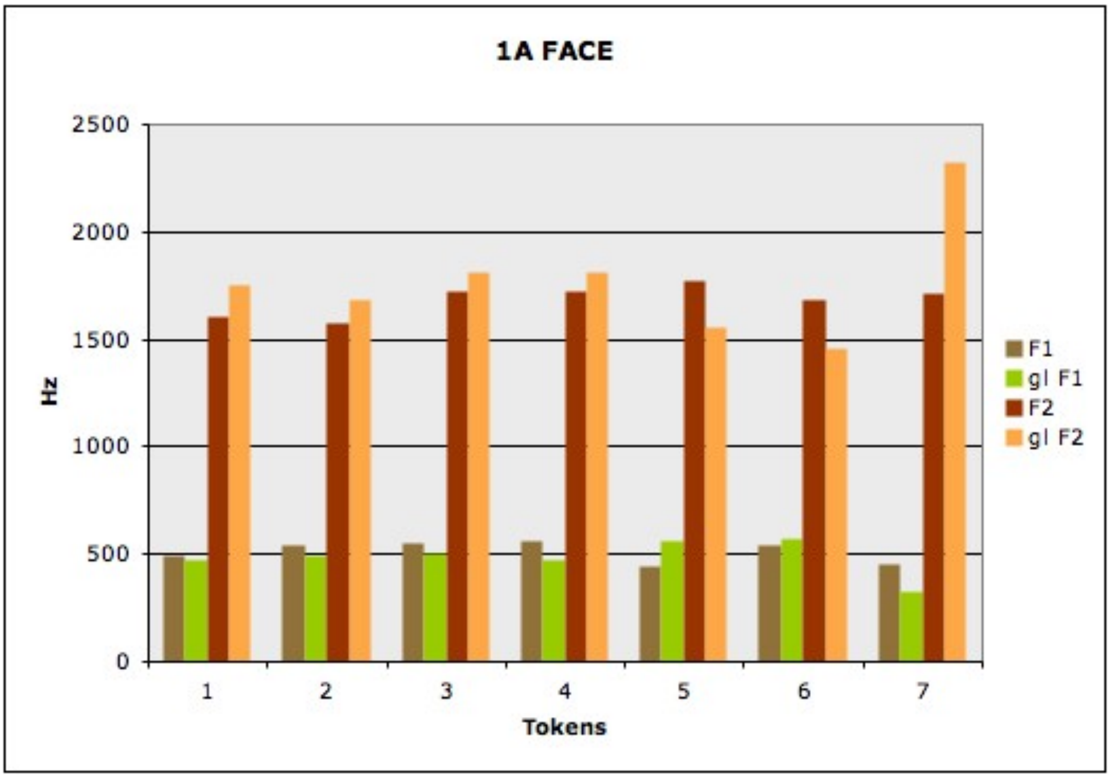


Fig. 30: 1-6: Tokens from 1A FACE. 7: Reference token

The acoustic analysis of FACE supports the general impression of the monophthongal quality of the vowels in these words. The values of F1 and F2 taken at the beginning compared to the values taken at the end of the vowel showed that there was little movement, and the movement was not necessarily towards a more close position, e.g. in tokens 5 and 6 (*tail-jail*). When compared with a reference recording where a full diphthong is pronounced, the change from $F1_1/F2_1$ to $F1_2/F2_2$ was quite modest (see fig. 30).

The GOAT-vowel has a steady monophthongal state in most instances for all the informants. The auditory analysis of the GOAT set pronounced by 3D left the impression that all GOAT words were pronounced with a steady monophthong /ɔː/.

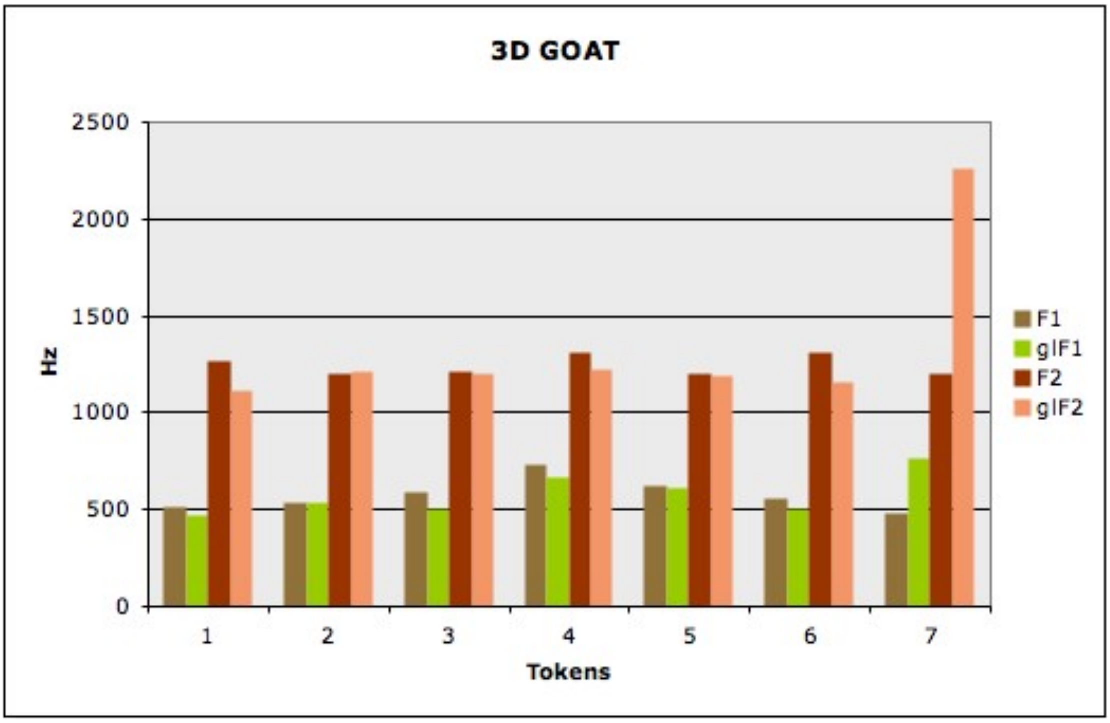


Fig. 31: 1-6: Tokens from 3D GOAT. 7: Reference token

The acoustic analysis showed that the analysed GOAT words were all pronounced with a long monophthong rather than a diphthong. As fig. 31 above illustrates, there is barely movement in the second token, and in the other five there is not enough movement for them to be labelled as monophthongs. The difference in transition is evident when comparing with the reference recording, which was found on a CD in Ladefoged 2001.

4.2.3 Findings

4.2.3.1 TRAP - BATH - START

In the following the results of the three lexical sets TRAP, BATH and START will be discussed, focusing mainly on variation within the lexical sets of single informants and the variation within sets between informants.

The analyses of these lexical sets have shown that speakers may have a wide repertoire of pronunciations within one single lexical set. For some speakers the difference in Hertz between the lowest F1 value and the highest value was as large as over 300 Hz, while the F2 range could cover more than 500 Hz. This difference is illustrated in the scatter diagrams included in the discussion on each informant. It is important to note that not all this variation is necessarily linked to actual variation in the quality of the vowel phoneme, but rather to the fact that vowel phonemes in connected speech are inevitably influenced by their surroundings. The many instances of lowered F1 values due to nasalization because of a following nasal, or lower F2 as an effect of colouring from a following velarized lateral exemplify this point. One slightly complicating factor in this respect is the fact that not all tokens with the same phonetic surroundings were affected in the same way. Although all pre-nasal vowels had some degree of nasalization, the extent varied and the effect on the acoustic properties of the vowel differed from token to token. The same was the case for the tokens immediately succeeded by a lateral.

Not only did the single speaker's pronunciation of different words in the lexical sets vary, but the variation between speakers was also quite large. Comparing the scatter diagrams mentioned above quickly reveals the degree of variation between speakers as well. What is interesting is how the informants differ. The results of this analysis indicate that the divergence in variation is linked to the informants' gender rather than their age. As the diagrams illustrate, four out of six male informants have little variation in these lexical sets (1A, 2A, 1C, 2C). All the female informants, on the other hand, have relatively large variations in their realisations of these vowels. The female informant with the least variation, 3D, still has a comparably wide variation when contrasted with the male informants. There does not seem to be a noticeable difference with regard to the age of the informants. The four male speakers with least variation are evenly divided in the two age groups. In other words, this seems to support what has been said earlier about the important role of gender as a sociolinguistic variable.

It seems evident, based on the analysis in this study, that the vowel quality in TRAP, BATH and START is still essentially the same. As far as duration is concerned, this seems to be very speaker-dependent. Most speakers have shorter vowel durations in

BATH than in START, such as informant 1A, but many have a large degree of variation in duration within lexical sets too. This is largely due to the features of the neighbouring consonants. Even though the vowel START is transcribed with a long vowel while BATH-words are transcribed with a short /a/, this may not always be how it is realised. In many cases the vowel in *marvellous* is in fact shorter than in *laugh*, which is the case for informant 2C. In this case the difference may have to do with number of syllables.

4.2.3.2 FOOT - STRUT

The analysis showed that for some informants there is a large degree of variation in the vowel quality of both FOOT and STRUT. For a few speakers the pronunciation of FOOT is in fact more varied than that of STRUT, such as in informant 3B. For the rest, however, the degree of variation is either equal for both sets, or the variation of vowel quality in STRUT is larger than that of FOOT. One of the clearest examples of this is informant 2C, who has very little variation in FOOT and quite a lot in STRUT.

As stated above, STRUT had the largest degree of variation of these two sets. It seems evident that the realisation of many vowels in STRUT is moving towards a more central quality. When the tokens are sorted according to their F2 values, 16 out of the 20 with highest values belong to the lexical set STRUT, with the vowel in *stomach* accounting for more than half of them. For the most part the tokens sounded as if they were pronounced with at least some degree of lip rounding. Because of this the large variation was difficult to notice during the auditory analysis.

The most interesting token in FOOT is *cushion*. The vowel in this word has the highest F2 values and hence the most central quality for eleven of the thirteen informants interviewed for this thesis. For many of the informants, the F2 value in *cushion* is well above the other F2 values, such as for informant 4B, who has an F2 value of 1611 Hz in *cushion*, while the second highest F2 is found in *butcher*, at 1337 Hz. In his study of FOOT Fronting in the south of England, Torgersen found the fronting of FOOT vowels to be more common after velar consonants (Torgersen 2002). This could explain the large percentage of informants with centralised realisations of the vowel in *cushion.* While the variation in FOOT and STRUT described above seems to exist across both age groups and both genders, the two *cushion* tokens with the highest F2 belong to two of the young girls in the young group. This concurs with what Torgersen found in his study on FOOT fronting, where girls more frequently used the most fronted variety.

The variation in vowel quality for both FOOT and STRUT should not necessarily be attributed to a change in the phoneme qualities alone, since the surrounding consonants may influence the pronunciation of the vowel. This was discussed in relation to velarization of /ʊ/ because of the following lateral, and some of the variation found in this analysis may be caused by the effects of connected speech rather than actual changes in the phonemes used for different words.

4.2.3.3 FACE - GOAT

The auditory analysis indicated that the vowel quality in these lexical sets is still monophthongal, and an acoustic analysis was only conducted on a random sample. The results did not indicate any change in the monophthongal pronunciation of these vowels.

5 Conclusions

The aim of this thesis was to investigate how selected features of the Egton accent have changed over the course of 30 years, compared with the findings of Hans Tidholm in the late 1970's in the light of the developments that have taken place in the field of variationist studies over the years that separate the two studies.

5.1 Speaker variables

Tidholm's study focused on mainly on age and gender as speaker variables, selecting informants in three age groups and with both genders represented in the two younger groups. He did make a note of the class membership of each informant, but this was not used as a variable in the later discussion. In order to conduct the present study as a 'trend study' based on the earlier work by Tidholm, the same variables were used to select informants in two age groups. The main difference in the use of age and gender as variables for the material gathered for this study is that the number of male and female informants is the same, while Tidholm only had three female versus twelve male speakers. The inclusion of an equal number of informants in either age group and either sex was done in order to make the recorded material more representative, even if a small-scale survey like the present study can only be said to give an indication of what might be happening as far as variation and change is concerned. The choice of selecting informants in two different age groups was made in order to compare the two groups in apparent time, and to make use of the age cohorts Tidholm chose for his study in order to create an age continuum from the late 1880's until now.

Social class was not used as a variable in the selection of informants for the present study. This was partly to keep the variables used as close to those of Tidholm as possible, and partly because as pointed out earlier, the class contrasts found in larger cities and urban areas are not as clear in rural, smaller communities. The informants' and/or their parents' occupations and level of education were recorded, and based on this it seems that most of these informants can be said to belong to the upper working class. Most of the older informants left school at 15, while the members of the young group were either still students or had begun working. One of the informants in this group had recently finished a bachelor degree. This would place her in the middle class category, but her background is in the working class category.

The use of social networks as an important sociolinguistic variable was not established at the time of Tidholm's study, and this variable was not used for his informant selection. The present study did not use social network as a variable for informant selection or as part of the analysis. This can partly be explained by the wish to select informants according to the same variables as those used by Tidholm, but also by the fact that the amount of time spent in the field for this study did not leave much room for screening the local community for relevant networks before selecting informants. Although many of the informants were related, the whole group of informants cannot be described as a closeknit network. Not all the informants knew each other, for instance the young male informant in Glaisdale did not know all the older informants living in Egton Bridge or Ugthorpe. The members of the young group still attending secondary school in Whitby probably knew of each other, while the older members of the young group knew of each other and most of the members of the old group. The members of the old group knew each other, but not necessarily each other's children.

5.2 Comparison with Tidholm's predictions

Tidholm's work from 1979 was the starting point for the present study. His thorough investigation of the Egton dialect in general, and its phonemic inventory in particular, provided a solid base for further investigation of the accent. Certain obstacles did, however, appear throughout the process. Firstly, selecting informants based on the methodology described in his study was difficult. Tidholm's definition of 'Egton' is the parish of Egton, which encompasses the villages of Egton and Egton Bridge as well as the surrounding countryside. Over the course of 30 years, the population of this area has changed. Tidholm registered that a demographic change where local properties were bought by people from the outside was taking place at the time of his study. This development has continued since then, and several of the informants interviewed for this study pointed to the fact that the property prices in the area have risen to a level where young locals are unable to stay because they cannot afford to buy a place to live. This leads to a change in the demographic composition with fewer young families and a larger percentage of middle-aged and older inhabitants, many of whom are non-local. Finding informants in the age groups required for this study with the right background was therefore problematic.

The sense of local identity of the inhabitants has probably also changed since the time of Tidholm's study as the degree of mobility has increased, a fact attested to by the answers given when the informants were asked who they considered to be 'locals', belonging to the same place as themselves. Most of the informants saw the whole Esk Valley with all the villages as one community. Most of them considered Whitby to be 'outside', and identified the villages of Ruswarp and Sleights more as part of the outskirts of Whitby than included as local. A couple of the informants saw all the rural villages in North Yorkshire as belonging to the same community, stating "we're all Yorkshire-men here". According to some of the informants, the total number of inhabitants in this area of the Esk Valley (from Lealholm to Grosmont) is 4-500. For the present study it was impossible to find the required number of informants in the selected age groups in the exact same area as Tidholm used. Since the informants themselves list all of the Esk valley and surrounding villages as part of the same local community, the selection of informants from Egton, Egton Bridge and neighbouring villages in and around the Esk valley should give a representative impression of the local accent as it is now.

The second challenge in comparing the findings in this study with those of Tidholm is linked to the analysis of the recorded material. As mentioned earlier, Tidholm's analysis was purely auditory, and his transcriptions were done in part according to the IPA vowel chart of 1947 and in part using his own diacritics. This study, on the other hand, relies on an acoustic analysis, and the sounds are described according to their acoustic properties rather than specific tongue positions. The comparison between Tidholm's results and the findings in the present study is therefore based on the thoughts Tidholm had regarding the future of the features in question, i.e. comparing his predictions with the evidence found in the more recent data. As we have seen in the discussion of the chosen features, there is certainly variability in the pronunciation of sounds that Tidholm predicted would remain relatively unchanged. In TRAP and BATH Tidholm suggested that the vowel quality was [a] rather than [æ] and that this would remain the case for several generations. The findings in the present study seem to indicate that there is more variation in the vowel quality of these lexical sets than Tidholm found in the late 1970's. Several of the informants have pronunciations in these sets that vary within the area between [a] and [æ], and in some cases the quality seems very close to the latter. At the same time it is evident that in some cases the auditory analysis did not seem to indicate the amount of variation that was found during the acoustic analysis. The question is whether this also may have been the case with Tidholm's perception of these vowel qualities, so that an acoustic analysis of his recordings would have shown more variation than he perceived.

Tidholm also expected the vowel quality in START to remain a salient feature in the Egton accent for generations to come. The analysis in the present study showed that in general the quality of the vowel in START seemed to match that of TRAP and BATH nicely. The vowel qualities in START varied much in the same way as those in TRAP and BATH, except in a few cases were the variation seems to be moving towards a slightly more retracted quality. There is, however, no indication in the present material of a change towards an RP-influenced pronunciation of START.

Tidholm's predictions for the vowel quality [ʊ] in STRUT painted a somewhat grim picture of the future of this characteristically northern pronunciation. He showed that while [ʊ] was still the predominant quality in the older age group, it constituted only 35 % of the tokens in the youngest informant group. In age group Mid 58 % of the tokens were pronounced with [ʊ], which means that this age group seemed to be moving in the direction of a more centralised pronunciation. Even though Tidholm did expect the vowel in STRUT to remain a prominent feature of the Egton accent for years to come, he did expect the quality to move in the direction of [ə] eventually.

The present study shows that he was in part right in this prediction. The variation in STRUT is larger than in FOOT for many of the informants, even though it is interesting to note the varying quality in FOOT also. The informants differ largely in their pronunciation of STRUT in particular, but the tendency does seem to move, as Tidholm suggested, towards a more centralised quality. This could, perhaps, be seen as a confirmation of Wells' statement about how accents where [ə] is already a part of the phonemic inventory more readily add a new realisation of STRUT-words than accents where [ə] does not have phonemic status (Wells 1982: 357). As was the case in the analysis of the three lexical sets discussed above, the degree of variation was not always obvious in the auditory analysis. This may be due to the fact that many of the vowels that proved to have a centralised quality seemed rounded.

Tidholm predicted that the monophthongal pronunciations of the vowels in FACE and GOAT would remain Egton variants for a long time. He did, however, find the use of the RP-influenced diphthong in FACE to be on the rise, with as much as 40.2 % of the tokens in his youngest age group. In the material recorded for the present study, however, such a development was not evident. On the contrary, the auditory analysis gave no indication that these sets were diphthongised. An acoustic analysis of a randomly chosen selection of tokens showed that diphthongisation of the vowels in both lexical sets seemed almost non-existent.

Whether the variation found in some of the lexical sets discussed above reflects change in progress remains to be seen. As stated by Weinreich, Labov and Herzog, "all change involves variability and heterogeneity" (Weinreich, Labov and Herzog 1968: 188). The fact that the informants' pronunciation of the vowel in TRAP, BATH and START varies to the extent that the analysis in the present study seems to indicate could be a sign that the quality of this vowel may actually be changing. However, as Buchstaller points out, researchers need to distinguish between variability that results in language change, and variability that does not: "Variability, on the other hand, while certainly having the potential to change, does not necessarily need to. […] Put differently, we have to ask ourselves whether or not the variability we witness in the data is stable across real time" (Buchstaller 2006: 1). Thus variation in the pronunciation of a sound may be moving in one particular direction or another, but it may also be reverses and regain its original quality. This may have been the case with FACE, which was found to be moving towards diphthongisation at the time of Tidholm.

As stated earlier, the small number of informants interviewed for this thesis and the fact that they were not selected at random limits the reliability of the findings with regard to the extent that they can be used as evidence for making general statements about the development of the Egton accent in general. They do, however, make a contribution to the studies of accent variation in this part of Britain, and may indicate the direction of a possible development.

5.3 Further research

As the relatively restricted scope of an MA thesis sets certain limits as to how much can be included in a study like the present one, there are a number of features and questions that would merit further investigation. One example is the subject of dialect levelling. It would have been interesting to look at the Egton accent in a broader geographical perspective in order to consider whether this accent may be taking part in some sort of regional dialect levelling, and how far the perceived 'region' extends – where do the similarities end? The development of the vowel qualities of FACE and GOAT could be looked at more closely with regard especially to the reported GOAT-fronting, which is seen in the accents of Newcastle and Durham. Is this development also present in the Egton accent? It would also be interesting to study some of the consonant features of the accent in this respect, to see whether any of the changes that seem to be taking place in many parts of Britain are also happening in the Egton area. For example th-fronting and l-vocalisation are features that are on the rise in many parts of Britain. Hughes and Trudgill state that "when /l/ occurs finally after a vowel,

[...] it is realized as a vowel [...]. These comments are true not only for London but also for the Home Counties i.e. those counties adjoining London, and it is a feature which seems to be spreading" (Hughes and Trudgill 1996: 71). Ihalainen found evidence of l-vocalisation in the East Riding of Yorkshire, in sources from the 17th century (Ihalainen 1994: 204). One of the female informants interviewed for the present study showed signs of l-vocalisation in '*tail*'. This does not seem to be a feature shared by the other informants, but because consonants are not discussed in this thesis they have not been studied in detail. It would be interesting to see what such a study would reveal.

The analysis of the features studied in this accent was based solely on recordings of the wordlist. It would be interesting to analyse samples of free speech as well, and compare those with the results based on the wordlist. It could also be a good idea to return to Egton and make new recordings of the same informants as well as additional subjects, adding features that were not specifically included in the questionnaire for the present study.

I have obtained the recordings made by Tidholm at the time of his study, in a format that needs adaptation in order to be analysed using modern tools. If they were imported into Praat elements of his recordings could be analysed acoustically, and thus compared directly to the new recordings. This would unite the material gathered for the two studies and make the empirical data even stronger than they already are, making a further study of his material and the present material possible as a trend study in real time.

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Appendix 1: Questionnaire

1. First of all, I'd like to ask you a few questions about your local background.
   I.
      a. Where have you lived apart from Egton, and for how long?
      b. Have you lived in the same part of Egton all the time, or have you moved around within the area?
      c. Where did you father, mother, grandparents, husband/wife come from?
   II.
      a. What job do you (and/or your husband/wife) do now?
      b. What other jobs have you done previously?
      c. What is/was your father's last job?
   III.
      a. Which schools did you go to?
      b. Did you go to school in Egton, or did you go to school in one of the neighbouring villages?
      c. How old were you when you left school?
      d. Do you have any O- or A-levels?
      e. Do you have any further night-school, college or university education?

2. Word list

Now I'd like you to read out these words as naturally as you can.

3. Lexical

A few questions about some local Egton words
   I.
      a. Do you know what a *pissymare-hill* is?
      b. Do you ever hear anybody say this word?
      c. Do you ever use it yourself? (go on with other local words or expressions)
   II. Do you know any other local words?

4. Reading passage

I'd like you to read this short story. Please don't read as if you were in the classroom at school, but as naturally as you possibly can. I'd like to see just how naturally you can read it.

5. Egton

Some questions about Egton itself.
   I.
   a. What do you think of Egton as a place to live?
   b. What do/don't you like about it?
   c. Would you rather live somewhere else?
   d. Since you can remember, has Egton changed very much? In what way? For the better or worse?
   e. Do you find there's very much to do in Egton?

f. Would you say to someone who was thinking of moving here that you could enjoy yourself here OK if you wanted to?
g. What do you think is the best time of the year in Egton?

II.

a. What is Egton to you? Who do you consider to be Egtoners, and who do you consider to be neighbours?
b. Do you consider people coming from Glaisdale to come from the same place as you, or do you think of them as belonging to another community? How about Grosdale, Goathland, Sleights, Whitby?

6. Rapid word list

I. Would you now please say for me the days of the week?

II.… and count from 1-20?

7. Subjective attitudes

I. Some questions about the way people speak in Egton.

a. Do you like the way people speak in Egton?
b. What do you find to be typical traits of the Egton dialect?
c. What in particular do/don't you like?
d. Is there anything you don't like about the way you speak yourself/your children speak?
e. Have you ever tried to do anything about it?
f. Would you like to hear local radio or TV announcers with Egton dialects? Why (not)?

II.

a. Has anyone outside Egton ever laughed at you for the way you speak?
b. Has anyone ever recognised/made a mistake about where you come from by the way you speak?
c. Do you think people outside of Egton like the way people speak here?
d. Do you think the Egton dialect differs in any way from the dialects of the villages mentioned above (Glaisdale, Grosdale, Goathland, Sleights, Whitby)? If so, how?

Appendix 2: Word list

advantage

back

blood

answer

country

banner

faith

daft

bark

bathe

ant

boat

can’t

bowl

cart

bush

Charles

butter

cab

calf

bosom

budge

castle

don’t

butcher

class

code

badge

cup

cushion

bar

dance

cake

cat

dull

example

faith

far

holy

France

full

harsh

giraffe

cook

half

ham

hang

fuss

hay

joke

dash

farm

home

mane

hung

large

jail

mother

much

heart

know

hand

loaf

late

laugh

hunt

mad

oath

hook

marvellous

mate

puss

money

jazz

much

name

nasty

number

man

part

place

May

pudding

safe

wool

scroll

mask

put

path

rose

wool

run

star

punch

tape

scarf

pulse

sharp

soap

robe

tone

rush

tail

wolf

save

thank

stomach

tongue

trunk

tap

wool

Appendix 3: Reading passage

One day last year, when I was driving back to work after I'd had lunch, I had an amazing and unforgettable experience. It must have been two o'clock, or perhaps a quarter of an hour later, a quarter past two. It was an incredible thing, really. I was sitting there at the steering wheel of my new car, waiting for the lights to change, when all of a sudden the car started to shake, this way and that, rocking from side to side, throwing me backwards and forwards, up and down. I felt as if I was riding a bucking horse. Worse than that, some mysterious spirit or hostile force seemed to be venting its vast fury upon the earth. And the noise. There was a kind of deep groaning and horrible, awesome grinding which seemed to fill the air. And then, a short while after, the whole paroxysm had stopped, just as suddenly. Everything was calm and smooth again, quiet and peaceful once more. I put my foot down, just a gentle pressure on the accelerator, or the gas pedal, as it's known in America, and drove off. Everything was utterly normal once more. So then, was this some very local and momentary earth trauma which had struck us, or I asked myself, was it a supernatural visitation, some fiery storm of diabolical wrath, or was it rather merely that I had drunk a double vodka or two during my lunch?

Appendix 4: The informants

	Male informants			Female informants			
Age group	Informant	Informant	Informant	Informant	Informant	Informant	Informant
Young	1A	2A	3A	1B	2B	3B	4B
Mid	1C	2C	3C	1D	2D	3D	