Social Class Differentiation in South African Indian English

A Sociophonetic Study of Three Vowel Variables

Alida Chevalier

2011

A dissertation submitted in partial fulfillment of the requirements for the award of the degree of Master of Arts in Linguistics at the University of Cape Town.

Declaration

This work has not been previously submitted whole, or in part, for the award of any degree. It is my own work. Each significant contribution to, and quotation in this dissertation from the work(s) of other people has been attributed, cited and referenced.

Student Name:	Alida Chevalier
Student Number:	JCBALI004
Supervisor:	Prof Rajend Mesthrie
Institution:	University of Cape Town
Department:	Linguistics Section; Department of English. Humanities Faculty.

Signed:_____

Date: 11 February 2011

Abstract

Since Mesthrie's (1992)[1] pioneering work on South African Indian English (SAIE), very little work has been done on SAIE exclusively. Therefore enough time has passed to test his findings and postulations with current data, new variables, and new techniques. In particular the paper draws on progress in acoustic sociophonetics in the description of the vowels of the GOOSE, NURSE and THOUGHT sets, and basic statistics.

During apartheid, various legislations (e.g. the Group Areas act of 1950) dictated that the four racial groups within South Africa lived in separate areas and attended separate schools and universities. Due to the lack of inter-group contact and interaction, four broad dialects of South African English developed: Black South African English (BSAE), Coloured South African English (CSAE), South African Indian English (SAIE) and White South African English (WSAE). Since the end of apartheid in 1994, we have seen a change in community structures and interaction as a result of the abolition of apartheid and its legislations. This has resulted in all South Africans attending schools together, living in the same neighbourhoods and speaking to each other on a daily basis. What seems to have emerged is what Mesthrie (2010)[2] terms a 'deracialisation' of certain vowels within the English phonetic system by speakers across racial lines, with a 'neutral' accent starting to emerge. This neutral accent is becoming a feature of class as opposed to race. What I am investigating in this thesis is the extent to which the accent 'deracialisation' is occurring in the Durban Indian community in terms of social class, focussing specifically on the levels of class bifurcation within the speech community.

In gathering data for this study, 24 speakers were interviewed following Labov's (1972)[3] well known sociolinguistic method. The study is situated in Durban, KwaZulu Natal (the birthplace of SAIE). There are twelve SAIE speakers each of middle class and working class, and 4 speakers of WSAE as a control group. Each group has very a similar number of male and female speakers. The speakers are between the age of 16 and 24, since this age group represents the first generation experiencing non-racial schooling. Sociophonetic and basic statistical analysis of the data reveals a complex relationship between the Middle and Working Class speakers.

[1] Mesthrie, R. 1992. *English in Language Shift: The History, Structure and Sociolinguistics of South African Indian English.* Cambridge, Eng.: Cambridge UP

[2] Mesthrie, R. 2010. Socio-phonetics and social change: Deracialisation of the GOOSE vowel in South African English. *Journal of Sociolinguistics.* 14(1):3-33.

[3] Labov, W. 1972. *Sociolinguistic Patterns*. Philadelphia: University of Pennsylvania Press.

Acknowledgements

The completion of this study would not have been possible if it were not for the following:

- Prof Rajend Mesthrie, who is not only a supportive and valuable supervisor, but also a great teacher and role model to young researchers-in-training.
- The National Research Foundation Grant Holder Bursary, of which Prof Mesthrie holds a SARCHI Chair, for financial support.
- The AW Mellon Scholarship Programme, for financial support..
- The University of Cape Town Travel Grant, enabling me to attend a conference where I learnt so much about research in Sociophonetics, and for the opportunity to present my work to much-respected international scholars.
- Tracey Toefy, for teaching me to use PRAAT and NORM, for reading and editing my work, and for being a great supporter, friend, travel partner and fellow student.
- Almost-Actuaries Mark Fairbrother and Carl Blom, for helping my non-mathematical brain with the statistics.
- The informants who were so willing to talk to me.
- My family, for their unending support, love and prayers.
- My husband Byron, for all the love, support, and help and energy drinks.
- All honour and glory my God and Saviour for continuing to bless me although I am undeserving.

List of Abbreviations and Conventions

BSAE	Black South African English
CFE	Cape Flats English
CSAE	Coloured South African English
FMC	Former Model C
HOD	House of Delegates
J WORDS	Where the vowel in question occurs after /j/.
KZN	KwaZulu Natal
L1	First Language/Mother Tongue
L2	Second Language
MC	Middle Class
RP	Received Pronunciation
SAEP	South African English Pronunciation
SAIE	South African Indian English
SAE	South African English
WC	Working Class
WSAE	White South African English
'wa-' WORDS	Where the vowel in question occurs after /w/.

Where a vowel is followed by an environment, such as 'GOOSE Coronal', it means GOOSE as realised after a coronal sound.

Table of Contents

Declaration i

Abstract ii

Acknowledgements iii

List of Abbreviations iv

Table of Contents and Conventions v

Chapter 1: Introduction

1.1. Introduction 1

1.2. Background and Purpose of Study 1

1.3. South African Indian English: a Brief History 5

1.4. Literature Survey and Previous Studies 8

1.4.1. Variationist Studies 8

1.4.2. South African Indian English 10

1.4.3. English in South Africa 15

1.5. Conclusion 20

Chapter 2: Methodology

2.1. Speaker Selection 21

2.2. Sociolinguistic Interview 25

2.3. Vowel Analysis 27

2.4. Statistical Approaches 31

2.5. Conclusion 34

Chapter 3: The NURSE Vowel

3.1. Preamble 35

3.2. Introduction to NURSE 37

3.3. Results: Females 39

3.4. Results: Males 50

3.5. Males vs Females 59

3.6. Conclusion 65

Chapter 4: The THOUGHT Vowel

4.1. Introduction 66

4.2. Results: Females 67

4.3. Results: Males 78

4.4. Males vs Females 84

4.5. Conclusion 88

Chapter 5: The GOOSE Vowel

5.1. Introduction 90

5.2. Results: Females 92

5.3. Results: Males 96

5.4. Males vs Females 101

5.5. Conclusion 108

Chapter 6: Conclusions

6.1. Brief Summary and Conclusions 109

6.2. Recommendations 111

References 112

Appendix 116

CHAPTER 1: INTRODUCTION

Language change governs not only our history, but also our immediate present (Labov 2001, 3)

1.1. Introduction

This study is a sociophonetic investigation into a dialect of English spoken in South Africa: South African Indian English (SAIE). It explores the relationship between the middle and working classes in terms of three vowels and their realisations, whilst at the same time comparing these to a small control group of White South Africans. This chapter presents a full introduction to the study, outlining the background and purpose of this study (section 1.2.); providing a brief history of the genesis of SAIE (section 1.3.), and also providing a glimpse into prominent literature (section 1.4.) in the field concerning variationist theory, SAIE and other dialects of South African English (SAE).

1.2. Background and Purpose of Study

South African Indian English (SAIE) is a variety of English that has developed in a society kept separate under the Group Areas Act (1950) under apartheid. Apartheid was a system implemented by the South African government which categorised the South African population into four broad race groups, White, Black, Coloured and Indian, with strict rules governing their movements. Indian children had no contact with L1 English speakers of English descent as they lived in separate neighbourhoods and had to attend separate schools and universities (Mesthrie 1993, 13). This resulted in a variety of South African English that was identifiable as somehow different, even if this difference is not always obvious to the wider society, due to style shifting in public or formal interaction (Mesthrie 1993, 13).

Mesthrie (2002, 343) divided up SAIE of the 1980s into a basilect, mesolect and acrolect arguing that these were two distinct subsystems, with the mesolect being intermediate. They reflected the fact that SAIE was not a first language for all its speakers in the 1980s, and that it ranged from a focussed L2 to a close to standard L1 variety. This lectal continuum was particularly useful in accounting for the high degree of syntactic variation described in the 1992 book. This continuum is less relevant today, as older basilectal speakers become

fewer in number, and as SAIE is an L1 for almost all its speakers now. More relevant (Mesthrie 1992, 221) and personal communication) is the potential class continua that have continued to develop within the community since the 1980s. It is therefore more important to focus on working class versus middle class norms, especially for accent studies. Mesthrie (personal communication, 2011) is of the view that although there was some class cohesion in the mesolect and acrolect of the 1980s, this was not the case for the basilect which had poor and rich alike if they were united by less than close access to the target language and lack of close familiarity with L1 English norms. It is therefore the task of this thesis to describe and compare the norms of the working class and middle class speakers of SAIE.

Chambers (2009, 53) notes that social class creates a barrier to communication, in that people prefer to have meaningful communication with people who are in the same socio-economic context. He further notes that people who are upwardly mobile are associated with certain stereotypes. In the interviews done for this research, there were clear indicators of negative attitudes to other social classes, particularly linked to language. Interestingly, these attitudes were mostly expressed by the speakers in the middle class, either relating to members of their own social class who are 'coconuts' (brown on the outside and white on the inside, i.e. trying to be 'White') in terms of the way they speak and dress, or to members of the working class as 'thambi Indians[1]' or 'Chatsworth Indians'. Sakina[2], a middle class female, was very clear about this:

> A: So you only really spent three years of your life in Chatsworth.
>
> S: Ja. So I'm not like a thambi Indian you know.
>
> A: What does that mean?
>
> S: It's like, Chatsworth Indian, like you just say like thambi Indian it's like somebody who uses all the slang like 'tuning' and 'ek sê' and all that and like, (...). Ja so I'm not like a full thambi.
>
> A: Does that apply to Phoenix as well?
>
> S: Ja, like that whole like, those that group of people. (...).

[1] Noun meaning younger brother or male first cousin. In this sense, used as a slang term in a slightly derogatory sense. See Mesthrie (2010a, 232) for a full definition.

[2] Pseudonym – for a full list of speakers, see section 2.1.

Sakina also notes that middle class people can 'act thambi' by sitting around in groups playing thanni (a card game)[3], using slang and wearing chains, which indicates that being a thambi is not just about the kind of language used, but also about overall behaviour. Dayita expresses a similar opinion, but uses 'Chatsworth Indian' instead of thambi. She says that Chatsworth Indians are 'thorough' Indians, that they are rough, and that they speak differently to her (MC) friends, noting that they (her MC friends) 'talk Indian', but it's more 'English influenced' and 'lighter' in terms of accent and slang. These attitudes indicate that there is indeed a social class barrier in terms of communication and socialisation within the Indian community of the Durban area. Sturtevant (1947 cited in Labov 2001, 24), "viewed the process of language change as the association of particular forms of speaking with the social traits of opposing social groups", which is also confirmed by the attitudes of my informants.

The working class speakers display a mesolectal variety of English that is very similar to WSAE, but differs in phonetics and also some syntactic/lexical structures[4]:

(1) Interviewer: What are your brothers' names?

Hamid[5]: Ah the **biggest** is Husain, I'm the second and I have a **smaller** brother, his name is Hashim.

(2) Interviewer: what was the worst moment of your life?

Hamid: Worst moment of my life? What was the worst thing? Ok, because I think I was so popular **like** at school, I think I had some bad moments in school like when we **used to** play soccer and get injured and then, because we didn't have **like**, they never opened the playground for us, **like** during free periods we played on the tar, and **like** people **should** fall and 'cause I was so popular then the day I slipped and fell I really hurt myself and everyone was laughing. That was **like** the worst moment for me in school.

(3) Interviewer: Brothers and sisters... how many?

Lalita: No I'm the only child. Um my parents were divorced from the time ***I'm*** two years old.

(1) is a clear example of lexis differences between SAIE and WSAE, where SAIE has 'bigger' and 'smaller' for WSAE 'older' and 'younger'. In (2), 'should' represents the past habitual

[3] Mesthrie 2010a, 233.
[4] Bold indicates words/phrases of interest.
[5] See section 2.1 for the list of speakers.

'used to', which is a feature used in basilectal and mesolectal speech, but which is not present in other varieties of English (Mesthrie 1992, 129). (3) shows 'I am' used in the past tense, where WSAE has 'I was'. Hamid, in (2), makes use of the word 'like' in a way which is also a feature of (young) WSAE speakers. Pienaar (2007, 98), in her corpus of SAIE, noticed a large occurrence of 'like' in more than a verbal sense among MC Indian students at Rhodes University. The use of 'like' in this way by both WC and MC speakers indicates that the differences between the mesolect and the acrolect are becoming slightly less pronounced (at least syntactically).

Furthermore, Hamid uses both 'used to' (underlined above) and 'should' as past habitual markers, which also shows some convergence in the syntax of the varieties of SAIE. Interestingly, the use of both forms of the habitual marker was also documented by Mesthrie in his 1992 study. 'Should' could also mean 'would have', for example: 'imagine the other dog was here, how jealous he should get!' (Mesthrie 1992, 130). Phonetically, the WC SAIE speakers interviewed sound different to WSAE (by ear), although they share some syntactic features. The middle class speakers do not display any syntactic features that differ from WSAE, but to the ear they sound different from both the working class and the WSAE speakers.

The study at hand, therefore, is focussed on phonetic characteristics of SAIE. Mesthrie's 1992 study proves that there are indeed differences between working class and middle class speakers in terms of lexis and syntax, and this work aims to add to this knowledge for accent. The aim of this study is to determine exactly what the phonetic differences and similarities are between WC and MC speakers, and through this to determine whether or not there is class bifurcation. I chose only three vowel variables, since more than three is not suitable to a study of this size. The first vowel is GOOSE[6], a vowel which has (and still is) showing significant fronting in WSAE and BSAE, and to a lesser extent SAIE and CSAE, as found by Mesthrie (2010b)[7]. The second vowel is NURSE, which has not been studied before in terms of SAIE, except in my Honours research essay with a smaller database (Jacobs

[6] Labels for vowels as per Wells' (1982a) lexical sets.
[7] Study presented in more detail in section 1.3.2.

2008). THOUGHT was the third variable since the realisation of it by the speakers interviewed drew my interest. For clarity of presentation it is necessary to discuss first NURSE and THOUGHT, and GOOSE last.

1.3. South African Indian English: a Brief History

South African Indian English (SAIE) is a variety of English which has developed over the last 150 years, moving from having partial roots in a transplanted variety (Indian English of India) as a second language, to a first language. Due to social and economic factors (inter alia), many Indian South Africans today have shifted from their ancestral languages to English. Indian culture is rich and vibrant, and the dialect of English that emerged is one that contains this cultural spice in terms of lexis and accent[8]. Indians arrived in South Africa in the 1860s, and as such SAIE has a rich history, and it is important to see the development of this dialect in its socio-historical context.

By 1860, three of the four products farmed in Natal were no longer in existence due to disease and market conditions, with sugar remaining as the only permanent product produced (Thompson 1952, 4). First made in Natal by Edmund Morewood in 1851, sugar was being cultivated in large parts of Durban, requiring a very particular labour force, and as Thompson (1952, 4) notes, "without a large and reliable number of capable hands sugar-planting is a barren occupation". Obtaining labourers was a hard task: even though there were about one hundred thousand Zulus in Natal (Thompson 1952, 5), the males were somewhat averse to working in the agricultural sphere as these tasks were traditionally preformed by Zulu women (Mesthrie 1991, 3). In addition, the local labourers were seen as inadequate and unskilled (Thompson 1952, 5). Some Amatonga labourers were brought from Mozambique but this was not enough to sustain the demands of the sugar industry (Mesthrie 1991, 3).

In about 1850, the missionary Reverend Holden wrote on the idea of importing labour from India or China, although it took years of debate for the idea to take hold in the minds of Natal sugar farmers (settlers etc.) and to come to fruition (Thompson 1952, 9). After a visit

[8] See Mesthrie (2010a) for an in-depth description of the SAIE dialect.

to Natal in 1855, the Governor of the Cape Colony, Sir George Grey, wrote to the Secretary of State in Britain advocating the idea of importing labour from India (Thompson 1952, 10). After numerous discussions and petitions, Natal was lawfully ready for immigrants in 1859:

> The immigrants were to complete five years' "industrial service" at wages not less than ten shillings a month (with the option of purchasing exemption from the last two years of that service for five pounds). Five years after their arrival in Natal they became free men. Ten years after their arrival they became entitled to free passages back to India, but, (...) if they preferred to remain in Natal the governor could, at his discretion, make them grants of crown land equivalent in value to the cost of return passages (Thompson 1952, 14).

In October 1860 the Truro and the Belvedere set sail bringing indentured workers from Madras and Calcutta respectively, followed in November by the Lord George Bentrick from Madras, the Spirit of Trade from Calcutta, and in February 1961 the Tyburnia from Madras (Thompson 1952, 17). Three hundred more labourers were sent some time later (1864) on the Ocean Chief (Thompson 1952, 19), and from 1860 until 1911, 152 184 Indians arrived in Natal under indenture, with merchants and traders adding to this number (Mesthrie 1991, 5-6).

The Indians who arrived in Natal were themselves a very diverse group, consisting of people from various castes, languages, religions and areas of origin (Thompson 1952, 20-1). All four of the castes were represented: priests, warriors, merchants and workers[9], although the majority were workers (Mesthrie 1991, 8). The main languages spoken by the immigrants were Tamil and Telugu from southern India, and Bhojpuri, Awadhi and Hindi from northern India (Mesthrie 1992, 7). Other languages such as Urdu, Bengali, Panjabi, Oriya and Magahi only had a select few speakers, or, as with Malayalam, did not last beyond one generation (Mesthrie 1992, 7).

In India the interaction between people was based largely on caste. On the plantations, however, people of all castes were expected to live, work and share facilities with each other (Mesthrie 1991, 8). As a result of so many different people living and working in such

[9] Brahman, Kshatriya, Vaishya and Sudra respectively.

close proximity there were significant levels of language contact, and the children became bilingual in particularly Bhojpuri and Tamil (Mesthrie 1991, 17). The labourers and merchants arriving in Natal were, in general, not familiar with English and its acquisition was fairly slow and imperfect (Mesthrie 1991, 17). There were some migrants who spoke English, but this was a kind of English far removed from standard British English (Mesthrie 1992, 12-14).

According to Mesthrie (1992, 19) Indian migrants learnt English in four different ways, each contributing to SAIE considerably:

(a) schooling, with teachers being native speakers of English
(b) schooling, with teachers being non-native speakers of English
(c) contact with native speakers of English in Natal
(d) contact with non-native speakers of English (chiefly Indians)

Most of the teachers in the schooling system came from India, which is why SAIE shares a number of prominent features with Indian English (IE), one example being to *by heart* something, which means to 'learn something off by heart' (Mesthrie 1992, 20). Contact with native and non-native speakers of English occurred in the work place, for purposes of trade and hawking, and in a way promoted the use of English (Mesthrie 1992, 22). After the indenture period (post-1911), English learning was a slow process since many Indian children were not attending school (Mesthrie 1992, 27). By the 1960s, however, more children were school-going, and they were bringing English into the home. This resulted in younger siblings having some understanding of English upon entering school, with the youngest child often being very comfortable in English whilst having only passive understanding of the ancestral language (Mesthrie 1992, 31). By the 1990s children were growing up as monolingual English speakers, and grandparents who did not learn English were forced to do so to communicate with their descendants (Mesthrie 1992, 31).

For the speakers interviewed in this study, the situation today is very similar to the 1990s, where the only speakers of Indian ancestral languages are the grand- and great-grandparents. However, there are new migrants entering South Africa post 1990, and children of these migrants can be found speaking Hindi, Tamil, Telugu and so forth. The

speakers involved in this study are all monolingual English speakers, and in some cases, the grandparents spoke English and a little bit of their ancestral Indian language. The parents of the speakers grew up speaking English to each other and their parents, and in some cases understand a little of the ancestral language. In other cases the speakers do not know what their ancestral language is. Dayita, for example, notes that her parents can understand "some Indian language", but she does not know what it is, nor does she really want to find out. Other speakers, when asked, said something to the effect of "I think it's Hindi", or "I'm not sure what my grandparents spoke, but it might have been Tamil".

Although there are many South Africans of Indian origin who are very aware and proud of their heritage (linguistically and culturally), others do not place much emphasis on the importance or use of ancestral Indian languages, with the community having largely shifted to English. SAIE, therefore, progressed from an immigrant English to a nativised L2 variety, and today is a 'language shift English' (Mesthrie 1992, 5).

1.4. Literature Survey and Previous Studies

The first part of this section outlines the current study's theoretical framework by locating it within studies previously carried out within the discipline of sociolinguistics. Since this study is concerned with vowel variation within a specific community in terms of class, it is situated within the variationist approach. As such, a brief discussion of Labov's variationist work will follow, as well as pertinent variationist studies and sociophonetic research. The second part of this section focuses particularly on SAIE, outlining studies which have been done in South Africa, and also SAE in general. In doing so will draw attention to the gaps in knowledge of SAIE which this thesis aims to fill.

1.4.1. Variationist Studies

Variationist Sociolinguistics and its methods was to a large degree started and propagated by William Labov in his well-known 1963 Martha's Vineyard and 1966 New York department store studies. Since then, numerous linguists have studied language variation and change in different languages and varieties. For the purpose of the current work, only studies that have a particular focus on language variation and social class will be discussed, albeit briefly,

drawing particular attention to the theory that language change (particularly sound change) has social origins (Labov, 1980).

When there are regular patterns of linguistic differentiation or variation to which residents of a community attach social significance, there is social stratification (Labov 2006, 129). As discussed earlier, some MC speakers attach certain attitudes of social status to the way the WC speakers speak, reserving terms such as 'thambi Indian' or 'Chatsworth Indian' for the working class group. Social stratification was evident in many of Labov's studies. In New York City (1972), he tested the pronunciation of /r/ within a single occupation group (i.e. department store workers), with the department stores being ranked on a scale from expensive to cheap. The customers would be socially stratified, and the aim was to test the stratification of the department store workers. The results showed social stratification according to the prestige of the department store, with the workers accommodating to the norms of their clients (Labov 2006, 46-7).

Labov later re-analysed the New York City data with a specific focus on social mobility (Chambers 2009, 63). In particular he studied the frequency of [d], a non-standard onset in words such as 'this', 'that' and 'they', versus the frequency of the standard counterpart [ð]. He found significant differences across social class, with the lower middle class using [d] much less than the WC, and the upwardly mobile speakers using fewer non-standard variants than the stable groups (Chambers 2009, 64). For the same variable in Philadelphia, Labov (2001, 119-120) found that "stable linguistic variables are not a function of age among adults, but are a monotonic function of social class".

Trudgill (1974, cited in Chambers 2009, 55) studied the English spoken in Norwich, England, in terms of social stratification. He found that the level of fronting for /a:/ is socially stratified with a particularly sharp contrast between the WC and the MC speakers. The WC speakers realised this vowel as either [ɑ̟] or [ɑ], where the MC speakers have [A]. Laferriere (1979, cited in Chambers 2009, 55) did a similar study in Boston, where she showed that the frequency of the realisation of /□/ as [□] instead of [o] is linked directly to

social class. While all members of the Boston society use both variables ([□] being an identifying feature of Boston English), the lower classes use [□] the most.

More recently, Fought (1999) conducted a study of Chicano English, where social class differences were observed as tightly interwoven with community networks. She observed GOOSE-fronting as a change which cannot be linked to social class alone. The fronting (or lack thereof) was as a result of social class as well as gang-membership, and the effect of these on GOOSE fronting was different for the males and females (the exact opposite, in fact). The patterning of the variation does not fit the 'curvilinear' patterns observed in larger communities. Therefore it is an important study, indicating firstly, that you cannot always consider class alone since there may be other factors which may lead to more observable patterning; and secondly, that minority groups are also worth studying.

Grammatical and lexical variables are also seen as markers of class, and often they mark class more sharply than the phonological variables (Chambers 2009, 56). This is evident in my sample, as mentioned earlier, in terms of lexis and syntactic differences between the WC and MC speakers, where the WC speakers use constructions such as 'I should play outside' where the MC speakers only use 'I used to play outside'.

1.4.2. South African Indian English

The most influential and widely-published author on SAIE is Rajend Mesthrie. Literature on SAIE by Mesthrie include topics such as the shift from OV to VO (1987), its history and sociolinguistics (1992), a SAIE lexicon (1992) and the move from English as a L2 to an L1 (1993, 2002). Most recently, Mesthrie conducted a sociophonetic investigation of SAE in general, which necessarily includes SAIE (2010b), and also produced a dictionary of SAIE (2010a). For the purposes of this study, Mesthrie's 1992 and 2010b results and approaches are briefly discussed.

In 1992, Mesthrie studied the history, structure and sociolinguistics of South African Indian English. This detailed description of SAIE is an important source of information for this study, as it aims to not only determine what changes have occurred, but to also add and

expand knowledge of SAIE for at least three vowels. His 1992 work furthermore affirms the validity of a social class study of SAIE since (inter alia) he found class differences in the use of 'should' as a past habitual marker, and 'childrens'[10]: speakers under twenty years of age belonging to the higher social classes and who were educated at a tertiary level did not use either of these non-standard forms (Mesthrie 1992, 133).

Mesthrie (1992, 136) lists the phonetic characteristics or indicators of SAIE, which is helpful in becoming familiar with the dialect at hand, as well as providing a solid basis for the description of SAIE as a dialect in present time. The syllabic and consonantal characteristics are briefly outlined below:

a) Syllable-timed as opposed to stress-timed.
b) Correspondence of dental stops [τ5;δ5] in SAIE to dental fricatives [T;Δ] in SAE.
c) Replacement of alveolar stops [τ;δ] with retroflex consonants [□;] in basilectal and unmonitored mesolectal speech (although this feature is declining).
d) Labiodental fricatives [ϖ;ϕ] realised as approximants [ς;ς8].

In terms of vowels, Mesthrie's corpus shows speakers retaining a back GOOSE, which had become centralised in SAE as shown by Lass in 1990. SAIE furthermore retained fully diphthongal realisations of PRICE, MOUTH and FACE which had undergone various levels of glide-weakening in SAE (Mesthrie 1992, 137).

Mesthrie's (1992, 137-8) corpus further shows that SAIE's vowel system is a "recognisably South African one, since it participates in 'indigenous raising' of the front short-vowel series, with accompanying centralising of /I/". It resists, however, raised vowel tendencies of extreme[11] SAE, as is shown in the table below:

SAIE	General SAE	Extreme SAE	RP	Example
[ɪ̈]	[ɪ̈]	[ɪ̈] ~ [ɔ]	[ɪ]	BIT
[e] ~ [ë]	[e] ~ [ë]	[e] ~ [e$^{\perp}$]	[ɛ]	BET
[æ$_{\perp}$] ~ [ɛ]	[æ$_{\perp}$] ~ [ɛ]	[ɛ] ~ [e$^{\top}$]	[æ]	BAT

Table 1: Front short-vowel reflexes in SAIE, South African English and RP (Mesthrie 1992, 137).

[10] As in 'the childrens put on a play'.
[11] For an explanation of General vs. Extreme SAE, see section 1.4.3.

There are 'minor' internal phonetic differences in SAIE (Mesthrie 1992, 138). Firstly, the realisation of /□/: Before nasals in prefixes, older speakers have [ℊ], where younger speakers have [□] or [□ˤ]. Secondly, in informal speech, there are instances where stress occurs on the ultimate or penultimate syllables, as opposed to word-initial stress in general SAE (Mesthrie 1992, 138)[12]. SAIE also displays phonetic variation based on the home language of the speaker, which (for consonants) is briefly outlined below:

a) Four realisations of /h/: voiced fricative [ɳ], murmured fricative [ʱ], glottal constriction, weak murmur on following vowel. The last two realisations are prevalent in some but not all Tamil/Telugu speakers.
b) A small number of Tamil and Telugu speakers have [j] and [w] as reflexes of /h/, resulting in words like *yad* for *had*. This only occurred in fast speech, and seems to be a recessive feature in older speakers of SAIE.
c) In some Dravidian speakers over the age of forty, there is overlap (albeit rare) between [ç] and [ω], resulting in pronunciations such as *adwertising* and *vould.*

In terms of vowels, there is a "broad distinction discernible between speakers of Indic and Dravidian background, except in acrolectal speech" (Mesthrie 1992, 140). An '*a*-coloured' schwa [□] is characteristic of Bhojpuri and Urdu speakers, as well as [ɛˤ] and [ɛ>] as realisations of /∈ˤ/. Indic speakers occasionally have very strong aspiration on voiceless stop onsets, whereas the Dravidian speakers have aspiration patterns that are more like general English patterns. Older Indic speakers also use [ɛ] for schwa, where older Dravidian speakers use [ɵ] or [ɛ̈]. In the younger speakers, this tends to be slightly different as you progress up the lectal continuum: basilect [ɛ] ~ [ɵ] ~ [ɛ̈ˀ] → mesolect [ɵ] ~ [ɛ̈ˀ] → acrolect [↔] ~ [ɛ̈].

Mesthrie (1992, 221) concluded his study by hypothesising that the (short term) future of SAIE is likely to be the following: "SAIE (will continue) to exist as a continuum of varying lects, and the extremes between the basilect and the acrolect (will become) less pronounced than as at present".

[12] For example: ∪imitate vs imi∪tate; ∪register vs re∪gister (Mesthrie 1992, 138).

For the 2010(b) study, the main focus was a sociophonetic investigation of GOOSE fronting in SAE. L1 speakers of English of each racial category[13] were interviewed sociolinguistically, and the data analysed through PRAAT. In terms of the Black speakers, Mesthrie (2010b, 17) found GOOSE fronting to varying degrees, although the White speakers consistently show a higher degree of fronting than the Black speakers. Coloured speakers also show GOOSE fronting, but the degree thereof is consistently less than the White as well as the Black speakers (Mesthrie 2010b, 19).

The analysis of the Indian speakers provided an interesting result, where the speakers are divided into three subgroups: A, embracing fronting; B, doing so less enthusiastically, and C siding with either group A or B depending on the phonetic environment (Mesthrie 2010b, 20-1). Group B is found to be similar to the Coloured speakers, who show some fronting, but who are resisting the level of fronting displayed by the White and Black speakers (Mesthrie 2010b, 22-3). Group A on the other hand shows levels of fronting significantly different to group B, and seems to be moving toward the norms of the White speakers (Mesthrie 2010b, 24).

The overall finding of this study is that middle class South Africans who are mother-tongue speakers of English are fronting GOOSE, irrespective of race. This has resulted in fronted GOOSE being deracialised, becoming instead a marker of youth and MC status (Mesthrie 2010b, 28). This deracialisation, Mesthrie (2010b, 29) says, calls for a new term for 'middle-class English' in South Africa, since the lects of the younger speakers are in a sense cross-over lects significantly different to the lects spoken by their parents, which makes labels like BSAE and SAIE inappropriate for them.

Arista Da Silva (2007, 2) and Ian Bekker (2009, 68) also note that it is inaccurate to classify SAE in terms of the traditional names, since these are labels which no longer accurately describe accents in post-apartheid South Africa. The current study is looking at both MC and WC speakers, and the term SAIE (as well as BSAE, CSAE and WSAE) is retained since there

[13] As a result of South Africa's unfortunate history, language has developed along racial lines, which necessitates the study of change post-1994 along racial lines as well.

are still significant differences between 1) SAIE and WSAE, and 2) WC and MC speakers. Mesthrie (2010b, 5) notes that,

> the collapse of apartheid has not destroyed (...) ethnic variation, and working-class varieties of Black, Coloured, Indian and White Englishes can still be discerned, with some salient internal differentiation within the last group based on class and ethnicity (i.e. English vs Afrikaner).

Furthermore, a large number of the Indian population (particularly in KwaZulu Natal) still speak this dialect, with only the young people starting to show changes. The dialect in question (along with the other three) is changing, but the change has not yet culminated in a 'race-neutral' accent, even though there is a move towards one. It is important to remember, however, that SAIE is a variety that, once focussed, is becoming more and more diffuse post-apartheid. I hypothesise that the next generation of South African Indians will speak a dialect of English that is fully related to social class, not race, in which case new terminology would need to be developed.

SAIE is a variety which has been reasonably well-studied. Besides Mesthrie's research, there have been recent studies on aspiration in older SAIE speakers (Delbridge, 2006); a corpus of SAIE based on middle class speakers from Rhodes University by Pienaar (2007) and issues surrounding SAIE, Standard English and language attitudes in middle class UKZN students (Wiebesiek, 2007). However, not much other work has been done on young speakers post-1990, with Mesthrie's (2010b) being the only sociophonetic study employing laboratory acoustics. The current study aims to add to the knowledge of SAIE as it has changed especially post-1994, becoming varied in terms of class. It also aims to provide a clear description of vowel variation within SAIE (albeit for only three vowels) which has not been studied in-depth since the 1990s. Mesthrie's (2010b) work specifically focuses on GOOSE fronting in SAE, where SAIE is one of the four varieties studied. By looking at SAIE alone, this work aims to provide a more in-depth description of GOOSE fronting and its behaviour in general, and adds new insight into the behaviour of NURSE and THOUGHT. It furthermore provides recent research related to the working class in SAIE, with most studies post-1990 having focussed specifically on MC speakers.

1.4.3. English in South Africa

South African English (SAE) has been studied or described by numerous people, the earliest of which are Hopwood (1928), Lanham (1967), Lanham & Macdonald (1979) and Wells (1982b). As a result of apartheid history, SAE in this sense refers to the varieties spoken by the White members of the South African population. These early studies on WSAE as well as more recent literature by Lass (1995, 2004), Bowerman (1994) and Bekker (2008) will be outlined briefly. This will be followed by a discussion of studies done on the other varieties of English in South Africa, namely Black South African English (Da Silva 2007, Van Rooy 2004) and Cape Flats/Coloured South African English (Finn 2004, Dennis 2008, Wood 1987). For each variety, only the vowels pertinent to this study will enjoy specific attention. Mesthrie's (2010b) study will be quoted in respect to each variety since it is the most recent study of all four dialects of South African English (broadly speaking)[14].

Hopwood (1928, 1) aimed to describe the English spoken in South Africa, as he noted that it had become strongly influenced by the "rapid advance of Afrikaans". His work describes SAE in relation to Standard British Pronunciation, and in regard to Afrikaans and Cockney influences. He identifies [ɛ_] and [ɔ>][15] as the most distinctive vowels of SAE (Hopwood 1928, 78-80).

Lanham (1967, 102) identifies four different dialects of English in South Africa: "African English", "Indian English", "Coloured English" and "Afrikaans English". He notes, however, that the only two "well-defined" dialects are what he calls Conservative and Extreme SAE (Lanham 1967, 102). Conservative SAE is a dialect that is very similar to that of Received Pronunciation; whereas extreme SAE displaces this conservative Southern-British-influenced system (Lanham 1967, 61). Between Conservative and Extreme lies Respectable (Lanham 1978). Lanham and Macdonald (1979) consider the 'standard' in SAE, and expand on the work done by Lanham in 1967 to include data from the 1970s.

[14] Most traditional studies of SAE employed oral methods and thus relied on auditory impressions. The only researchers mentioned in this section who employed acoustic methods are Bekker, Van Rooy, Dennis and Mesthrie.

[15] In comparison to Standard English [ɛ] and [ɔ].

Mitchell and Delbridge (1965, cited in Lass 2002, 110)) created a similar set to classify the social variation within Australian English, and these have mostly been taken up in terms of South African English: Cultivated SAE which closely resembles RP or is a feature of the upper classes; General SAE, a feature of the middle classes; and Broad SAE, which is a feature of the working classes as well as speakers with Afrikaans heritage (Bowerman 2004, 931). These labels are essentially the same as those proposed by Lanham (1967) and Lanham and Macdonald (1979): Conservative, Respectable and Extreme, and Lass (2002, 110) continues to use these "rather nasty creations" since they have become standard.

Wells (1982, 616) described GOOSE in SAE as quite often realised centrally, with the central variant (as expected) favoured after /j/. He quotes Lanham (1978, 153), who says that the centralised version of GOOSE is "widespread, apparently below social consciousness and maintained in formal style". For NURSE, Wells (1982, 615) notes that "the trend to make NURSE somewhat closer and fronter than in RP (as in Australia and New Zealand) appears to be on the increase in SA". This trend is a move towards [ɔ̈], and in Conservative SAE [ɛ̈] or [ɒ̈]. Wells (1982, 615) notes [ɒ̈] or [ɔ̈] for THOUGHT, based on Lanham (1978, 154).

Following mostly Lass (2002) and Lanham (1967), Bowerman (2004) describes the phonology of WSAE, using the labels Cultivated, General and Broad. Bowerman (2004, 937) notes that GOOSE is realised as a high central vowel in most cases, with fronter realisations in others (and in these cases fronter than RP varieties). Cultivated speakers produced a backer realisation, with young female General speakers showing a tendency towards [ʉ̈], as noticed by Lass (2002, 116). GOOSE is furthermore classified as "an important social variable" undergoing fronting ([ʊ̈] > [ɘ̈] > [ʉ̈]), a change led by young, female speakers (Lass 1995, 98). Lass (1995, 98) notes that speakers of Cultivated (Conservative) SAE realise NURSE as a mid-central vowel fairly close to RP [ɛ̈] whereas in the other varieties, speakers realise it as front-central [ɔ̈] or something lower. THOUGHT is realised as [ɒ̈] in Cultivated speech, and as [ɔ̈] in General and Broad speech (Bowerman 2004, 938).

Bekker (2009, 105) re-described South African English Pronunciation using data from twenty-seven White females 18 and 19 years of age. He uses the term SAE to refer to "the

dialect (mainly used) in the apartheid past by 'White speakers', while acknowledging, of course, that more recently many non-White South Africans have acquired native or near-native proficiency in this dialect" (Bekker 2009, 68). One of the main aims of his research is to situate South African English Pronunciation (in terms of vowels) within the context of recent theoretical frameworks (Bekker 2009, 5). These frameworks include attempts by various scholars to "explain the emergence of similar developmental patterns across different (regionally separated) varieties of English" (Bekker 2009, 5).

Bekker (2009, 308) observes /u:/ fronting, stating that it is clearly an indicator of SAE pronunciation. He furthermore notes that SAE (together with Australian English) is 'leading the way' in that fronting in this dialect is more advanced than that of RP (Bekker 2009, 308). Mesthrie (2010b, 14-15) notes that young, White middle class speakers realise GOOSE as front, with the central realisations being the 'backest'. The degree of fronting varies in terms of phonetic environment, with frontest realisations occurring after /j/ (Mesthrie 2010b, 15).

Bekker (2009, 393) describes NURSE as a vowel which is fairly stable in its realisations, and when compared to other dialects, displays raising, rounding and fronting. He furthermore notes that "the relatively fronted position of the SAE data *vis-à-vis* the (…) unrounded RP value, despite the effects of lip-rounding, also speaks to the extensive articulatory fronting of this vowel" (Bekker 2009, 393). In terms of THOUGHT, Bekker (2009, 303; 312) argues for possible vowel raising in SAE, although he notes that further investigation is necessary.

Da Silva (2007, i) provides, inter alia, a "descriptive account" of eight vowels in WSAE and BSAE, whilst comparing these vowels to those described in earlier studies. She set her study on the campus of the University of the Witwatersrand in Johannesburg, and interviewed students randomly (Da Silva 2007, 129-30). She found that lect 1 (essentially WSAE) has a choice of variants per vowel that is much more limited than the choice of lect 2 (BSAE) (Da Silva 2007, 213). For GOOSE, Da Silva (2007, 188) notes two different realisations: [←] and [ʊ(̄)]. The White speakers realise GOOSE as [←] 97% of the time, whereas the Black speakers have a 22%/78% split. For NURSE she identifies four variants: [Π], [™], [E] and [ɛ] (Da Silva 2007, 188). The White speakers have the [Π] variant 97% of the time, and once again the

Black speakers have all four realisations at 11%, 25%, 51% and 14% respectively. Da Silva's study did not include THOUGHT.

Overall, Da Silva (2007, 239) found that SAE has ethnic sub-varieties: lect 1 being spoken by mostly White speakers, and lect 2 by mostly Black speakers. Within lect 2, she found that there were two further sub-lects: one that shows features of L1 interference, and another which uses some features of L1 interference, some features from lect 1, and an altogether 'new' set of features (Da Silva 2007, 239-40).

Other phonetic studies of BSAE have been undertaken by (inter alia) Van Rooy (2000, 2002, 2004), Wissing (2002), and Van Rooy and Van Huyssteen (2000). I will briefly discuss Van Rooy (2004) in terms of the description of the vowels of interest to this work. BSAE is described by Van Rooy in the same way as SAIE by Mesthrie (1992): as a continuum of lects. In his 2004 work, Van Rooy focuses on the mesolectal and acrolectal varieties of BSAE, and compares them where possible:

Vowel	Mesolect	Acrolect
GOOSE	[ʊ]	[ʏ] > [ʊ]
NURSE	[ɛ]	[ə] ∫ [↔] > [ɛ]
THOUGHT	[□]	[□]

Table 2: The Vowels of varieties of BSAE (adapted from Van Rooy 2004, 945-47)

A characteristic of mesolectal BSAE is the nonexistence of the "tense/lax contrast and central vowels" (Van Rooy 2004, 945). NURSE, for example, is a central vowel, realised in BSAE as [ɛ]. Mesolectal BSAE, thus, has a five vowel system comprising of /ɪ, ɛ, ɑ, □, ʊ/ (Van Rooy 2004, 946). The acrolectal variety, on the other hand, also makes use of /ɪ, ə, ɒ/, with /ɵ, □/ emerging. Van Rooy (2004, 947) notes that comparing these two lects suggests that the acrolect is similar to L1 varieties of South African English, whilst at the same time displaying a large degree of inconsistency. The realisations for GOOSE, for example, are more lax than tense, with no consistent pattern observed (Van Rooy 2004, 947).

Mesthrie (2010b, 17) found that young, Black middle class speakers have moved away from the variety of English spoken by their parents (as described by Van Rooy, 2004), in effect

speaking an entirely different variety. Realisations for GOOSE are dependent on environment, with the frontest realisations occurring after /j/, followed by the coronal environment, and then the non-coronal environment.

Cape Flats English (CFE) or CSAE has been studied by numerous people, with work by Finn (2004), Dennis (2008) and Wood (1987) briefly outlined below. Finn (2004, 964) prefers the term Cape Flats English, saying CSAE is not an appropriate label since not everyone speaking this dialect is Coloured, and that 'Coloured' is a label often rejected by this community. I use these terms interchangeably.

Finn (2004, 972) describes GOOSE in CFE as having realisations that are normally back and rounded ([ʊ̟]). Wood (1987, 111) notes that there is a marked degree of rounding in CFE (irrespective of social class). Some L1 English speakers also produce [←], suggesting fronting (Finn 2004, 972). Dennis (2008, 58-9) confirms this, with some fronting being evident in her sample. However, she found that some middle class speakers in her study were 'holding back' in a sense, realising GOOSE much further back than their WSAE-speaking peers, thereby asserting a 'Coloured' identity. Other speakers had centralised versions which show their links with the White community. Mesthrie (2010b, 20) had similar results, and hypotheses that "changes in the GOOSE vowel symbolise(s) a modern, young person's deracialising identity, without going all the way".

For the NURSE vowel, Finn (2004, 971) notes "a high degree of variability. His data shows mostly [O̟(↔)], with smaller number realising the vowel as either [□̟] [□̟↔] or [↔]. He furthermore notes that this vowel is raised and backed to [o̟] when it occurs before /l/ (Finn 2004, 971). Wood's (1987) data shows [ɛ̟] as the main variant, with [↔(̟)] occurring to a lesser extent. The differences between these two scholars' results definitely show some language change occurring within the community of CFE speakers between 1987 and 2004. NURSE was not a variable studied by Dennis (2008).

THOUGHT also maintains a certain amount of variability. Finn (2004, 971) records [o̟] for all his speakers, with [o̟↔] also occurring regularly. Wood (1987, 122) records [□] for the working class members of his data-set.

1.5. Conclusion

This chapter has provided an introduction to the study, as well as to SAIE as a dialect. It has furthermore provided a brief outline of the work by well known researchers who have developed the field of sociolinguistics, highlighting not only the relevance of a sociophonetic study on a minority variety, but also situating this thesis within the literature that has been produced locally and internationally. A brief overview was also given of the literature produced within South Africa on the various dialects of English, situating SAIE firmly within this dialect spectrum, as well as providing point of reference between SAIE and WSAE (as the reference group of this study).

The next chapter will cover the methodological decisions and steps taken to collect and analyse the data.

CHAPTER 2: METHODOLOGY

Speech communities are characterised by immense variation, and the methods used to study and describe the linguistic patterns within the community were developed by Labov in 1966 (Milroy and Gordon 2003, 23). This variationist approach has at its centre a belief that there is indeed "social and linguistic functionality" in linguistic variation, and to find patterns within the variation sufficient and precise data collection must be done (Milroy and Gordon 2003, 23). This chapter outlines the various methods employed for this study in terms of sampling and analysis.

2.1. Speaker Selection

For various reasons, judgement sampling is much preferred over strict random sampling processes (Milroy and Gordon 2003, 26). Judgement sampling is a method whereby "the researcher identifies in advance the types of speakers to be studied and then seeks out a quota of speakers who fit the specified categories" (Milroy and Gordon 2003, 30). Sankoff (1980) outlines three decisions which need to be made in order to specify the categories the speakers need to meet (cited in Milroy and Gordon 2003, 26). The first entails defining the boundaries of the speech community or group of interest. This particular study attempts a linguistic description of the Indian community from KZN specifically (since most speakers of SAIE reside there). Speakers were therefore selected based on the fact that they were of Indian origin and from the Durban area.

Another boundary that was defined for the sample was age:

> Differences across generations of speakers are interpreted as evidence of language change in accordance with the *apparent time hypothesis*. This principle maintains that people of different ages can be taken as representative of different times (Milroy and Gordon 2003, 35).

South African children who received the bulk of their schooling post-1994 were in a very different social situation when compared with their parents. These children's movements and schooling were not subject to apartheid legislation – they socialised and went to school in a racially integrated environment. Young South Africans who would have experienced this change (i.e. the first generation experiencing non-racial schooling) would be between the ages of 16 and 24 today. The accurate study of the level of lectal convergence and

deracialisation across social class requires that the speakers studied are of an age that would represent this period in time.

The second decision involves establishing stratification for the sample, or in other words, deciding what aspects of the community influences variation (Sankoff 1980 as cited in Milroy and Gordon 2003, 26). Since this study is concerned with the linguistic relationship between working and middle class Indian speakers, the sample is stratified according to class. Furthermore, the sample is stratified according to gender, since this is often an aspect that influences language use (Milroy and Gordon 2003, 26; Chambers 2009, 115). White middle class speakers form a control group against which middle class Indian speakers were characterised. There is no equivalent control group for the working class.

The third decision Sankoff outlines is defining sample size (Milroy and Gordon 2003, 26). This is a small-scale study, where it was decided that the best number to aim for would be twenty-eight speakers: twelve from the Indian working class, twelve from middle class, and four from the White middle class (as a smaller control group). As a result of various factors[16], the sample is made up of eleven middle class speakers (six female, five male); eleven working class speakers (five female, six male) and four White speakers (two female and two male), leaving twenty-six speakers in total. This may seem like a very small sample, but, as Milroy and Gordon (2003, 29) note, "the very demanding kind of data handling involved in any linguistic study limits the number of subjects that can be included." This is especially true for sociophonetic work.

In choosing the speakers and the sample size, judgements have to be made by the researcher as to whether speakers are suitable or not (Milroy and Gordon 2003, 30). Speaker selections in terms of ethnicity, age and gender are fairly trouble-free, but defining speakers according to social class is not as straight forward. The criteria used to ascertain social class include education, parental occupation and to a certain extent, area and type of residence (Chambers 2009, 6). In terms of schooling, all the middle class speakers attended (for at least their high school career) a former model-C (FMC) or private school, whereas the

[16] Time constraints on our trip to Durban, and financial constraints preventing another trip.

working class speakers attended former House of Delegates[17] (HOD) schools. I stress area of residence as a major determiner of social class.

As far as parental occupation is concerned, "the essential distinction separates non-manual and manual workers", where the manual workers have become known as the working class, and the non-manual workers the middle class (Chambers 2009, 7-41). When the interview did not manage to cover parental occupation, as is the case with Dayita, area or type of residence and schooling were used to judge class. In Jeevan's case, his father has a very good job, but his parents are divorced and he has chosen to live with his mother in Chatsworth, and to attend a HOD school in the area. As such he is a WC speaker, since his social networks are the same as that of the other WC speakers. Speaker profile and class classification is presented in the table below, with each speaker having a pseudonym.

	Speaker	School	Parental Occupation	Age	Class & Sex	Area of residence[18]
1	Dayita [C]	Private	Not in interview due to technical problems	18	MC, Female	Musgrave
2	Pari [M]	FMC	F: Financial Advisor at Old Mutual. M: used to teach, now bakes from home.	18	MC, Female	Sydenham
3	Pia [M]	FMC	Both parents work in and own an engineering/building company. Dad qualified, mom learnt while working.	16	MC, Female	Lotus Park/ Amanzimtoti
4	Deepti [M]	Private	F: Property and Construction M: Qualified teacher, but runs dad's seafood cold storage business from home.	20	MC, Female	Merebank
5	Anisha [M]	FMC	F: High School English Teacher M: Deputy Principal of Primary School	19	MC, Female	Redhill
6	Sakina [C]	Private	Both parents are well-known academics at UKZN	18	MC, Female	Glenwood
7	Zashil [C]	Private	F: owns a car company	18	MC,	Umhlanga

[17] In 1984 a Tricameral Parliament was established, with three chambers: House of Assembly for White voters, House of Delegates for Indian Voters, and House of Representatives for Coloured voters. Each house was responsible for education for their communities (Bunting 2002, 60).

[18] Refer to the appendix for maps of Durban and its surroundings.

			M: works as a beautician from home		Male	
8	Latif [M]	FMC	F: Doctor.	22	MC, Male	La Mercy
9	Madhur [M]	FMC	F: Psychology Lecturer M: Housewife.	22	MC, Male	Westville
10	Samir [M]	Private	F: Property and Construction M: Qualified teacher, but runs dad's seafood cold storage business from home.	21	MC, Male	Merebank
11	Sanwar [M]	FMC	F: Doctor M: qualified beautician but doesn't work.	21	MC, Male	Redhill
12	Lalita [CM]	HOD	Supported by grandpa, who works in a factory	20	WC, Female	Chatsworth
13	Sarasa [CM]	HOD	M: coordinator for underwear company	22	WC, Female	Chatsworth
14	Jyoti [M]	HOD	F: unemployed M: passed away	16	WC, Female	Chatsworth
15	Omana [M]	HOD	both parents worked, nature of business unlcear	17	UWC, Female	Shallcross/ Merebank
16	Neeta [CM]	HOD	F: retired, used to be a machine operator in a factory	23	UWC, Female	Merewent
17	Chetan [CM]	HOD	F: Machine operator in a framery (has died) M: Manageress at a factory	20	WC, Male	Chatsworth
18	Jalil [C]	HOD	F: preacher	18	WC, Male	Chatsworth
19	Hamid [CM]	HOD	F: buyer M: manager for shipping company	20	WC, Male	Chatsworth
20	Jeevan [CM]	HOD	F: Chartered Accountant M: Nurse	16	WC, Male	Chatsworth
21	Sartaj [M]	HOD	F: works at post office	20	WC, Male	Merewent
22	Nirav [M]	HOD	F: truck driver but not working due to illness	18	WC, Male	Navy
23	Kaitlyn [M]	Private	F: Managing Director of a company that supplies security clothing (bullet-proof vests etc). M: Caterer and Beautician	18	MC, Female	Glenwood
24	Alice [C]	Private	F: unknown, but paid for private school M: teacher	19	MC, Female	Westville/ Hillcrest
25	Adam [C]	Private	F: Accountant M: Personality Profiler – own business	18	MC, Male	Kloof

26	Gerard M	Private	F: Financial Director at a Wholesaler	18	MC, Male	Durban

Table 3: Class Classification and Profiles of the Speakers. (1-22 = SAIE speakers. 23-26 = WSAE speakers). C Indicates speakers interviewed by Chevalier, M by Mesthrie, and CM by both Chevalier and Mesthrie. F = Father, M = Mother.

Jalil presented a problematic case in that he is the only one of the working class speakers who left KZN to study at UCT. Of the other working class speakers, only Sartaj, Neeta, Sarasa and Lalita are pursuing post-Matric studies, but within the Durban area at colleges, not university. Although Jalil is from Chatsworth, the fact that he is more mobile than the rest of the speakers from Chatsworth has a slight impact on his accent. He is in the working class group due to the fact that he is still living in Chatsworth and had matriculated from a school in the community. As a coincidence his syntax is, to some extent, similar to the other working class males in that he says "we should play spin the bottle", where 'should' means past habitual 'used to' (Mesthrie and Bhatt 2008, 63). In terms of his accent, he does not sound like the middle class speakers, but he represents a sort of 'class island of his own' in some environments, while fitting into the WC group for others.

2.2. The Sociolinguistic Interview

The aim of a sociolinguistic study and indeed of the study at hand is to investigate and describe the features of language used by a particular community. As mentioned earlier, there are various degrees of style shifting occurring amongst speakers of SAIE, and my sample is no different. As Milroy and Gordon (2003, 23) note, "one of the defining characteristics of sociolinguistic research is its commitment to the examination of language that is actually produced by speakers (as opposed to the potential language of their "competence")." The interviews conducted with the speakers aim to elicit their most relaxed and unmonitored language use (i.e. the vernacular), which is where the most reliable patterns of vowel variation will lie. Ideally the speaker needs to feel relaxed and comfortable enough to 'forget' to think about the way they are speaking, and this is where the 'observer's paradox' comes in:

> The aim of linguistic research in the community must be to find out how people talk when they are not being systematically observed; yet we can only obtain these data by systematic observation (Labov 1972, 209).

There are various ways of overcoming this paradox. The interviews for this study were conducted by Raj Mesthrie and me, as part of a large, cohesive project on language and social change. Although we share interviews, my research is independent of the project in that I focus specifically on SAIE vowel variation, and the analysis is my own. In each interview we asked the speaker certain questions in order to obtain important background information about schooling, parental occupation and so forth. At some point during the interview, we had the speakers read a list of words (based on Well's (1982) Lexical Sets) to obtain a more monitored style of pronunciation. Gathering different types or styles of spoken data are important in uncovering the patterns of variation (Milroy & Gordon 2003, 23-4). The rest of the interview, which lasted thirty minutes to an hour, was spent talking about general things such as school experiences, culture, religion etc. While we mentioned that the interviews were to a certain extent about language, we took the emphasis away from language by saying that the interview would be about life and language in Durban. In doing so we aimed to elicit a conversation where the informant did not feel like we were monitoring their language use at any stage, although we were interested in it.

Mesthrie was often able to enter people's homes and so minimise the feeling of a formal interview. Occasionally, he interviewed speakers at UCT. Even though he is older than the speakers, he is a member of the Indian community which means he has insider's advantage. Mesthrie also interviewed some of his students, and in this case they might have taken a little longer to relax since he is an authoritative figure. I interviewed some speakers at UCT where some speakers knew me as their tutor, and others who did not know me in their homes in the Durban area. I am very close to their age which would make them feel on par with me in a way. I am an outsider to their community and this might affect the way they speak to me, which is why I tried to make the interview situation as relaxed as possible. I often sat with my feet up to indicate that the interview is informal, and I tried to let them dictate the flow of the conversation.

Labov (1972, 209) notes that the vernacular can be elicited within the interview through methods which distract the speaker from the way they are speaking, diverting it to what they are talking about. Mesthrie and I used a version of the danger of death question (Labov

1972, 209) by asking the interviewees about crime in the area, or whether they had experienced crime. This often elicited long narratives. He also asked them about the best and worst moments of their primary and high school careers. Sometimes, however, the interviewee said something that I noticed as interesting, so I asked them about that. With one speaker, for example, I noticed that he constantly referred to the experiences he has had, saying often that he has had so many experiences in Cape Town. I asked him to tell me about one of his experiences, and he proceeded to tell me a twenty minute narrative about an intoxicated friend who went missing and found himself five hours away from home.

The interviews Mesthrie and I conducted together in Durban were similar in style. We were in the homes of the speakers in Chatsworth and Merebank, and we asked them about their experiences at school, slang in Durban, culture and religion (inter alia). Religious choices were frequently discussed, since some interviewees had converted from Hinduism to Christianity. Linked to this discussion were their names, since names often indicate religious affiliation, and many people change their names when they convert to Christianity. After a long conversation about the above-mentioned topics, we gradually approached the danger of death question. The biggest advantage of going into their homes is that it gave me insight into a community to which I do not belong, and I learnt so much about Indian culture and religion (and food!) which makes this project all the more close to my heart.

2.3. Vowel Analysis

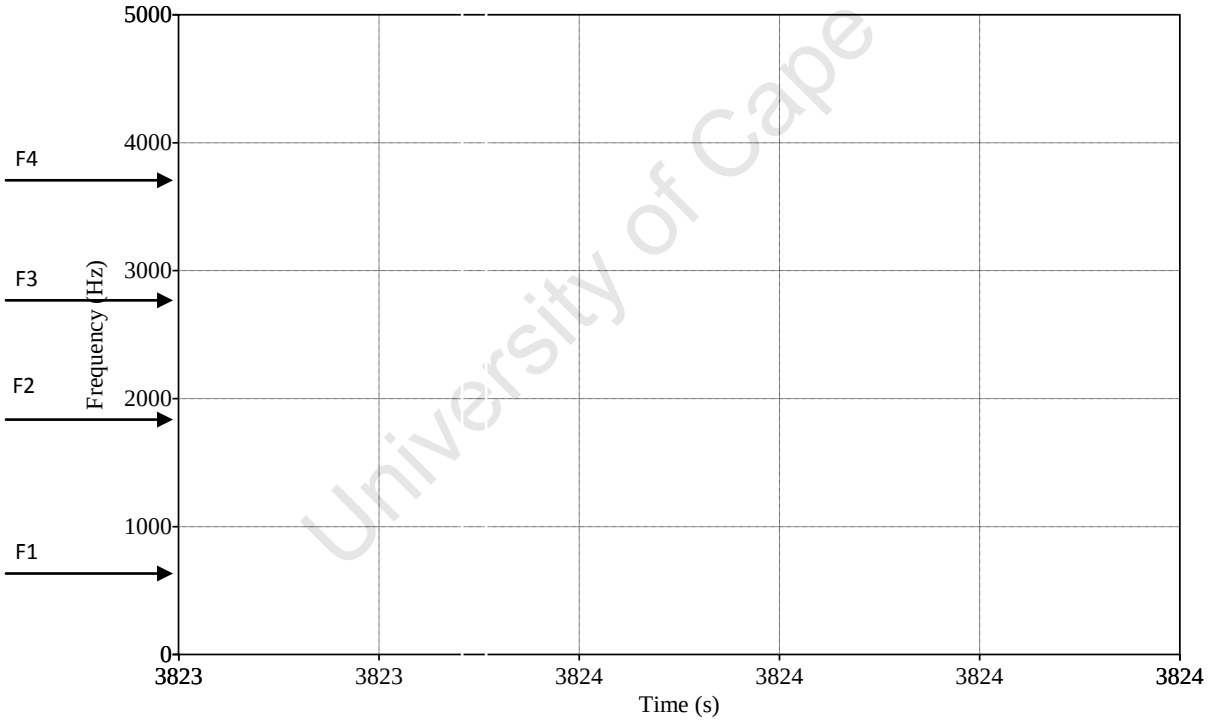
The speakers were recorded (with their permission) using a digital recorder. The sound file was then transferred into the programme PRAAT (Boersma and Weenink 2010), where the vowels for each token of GOOSE, NURSE and THOUGHT were extracted and analysed. In total, 3008 tokens were analysed:

GROUP	GOOSE	NURSE	THOUGHT	TOTAL
WC Female	160	250	200	610
WC Male	125	144	155	424

MC Female	230	236	242	708
MC Male	246	221	256	723
W Female	66	91	77	234
W Male	60	114	135	309

Table 4: Number of tokens per group, excluding word list. (W=White)

Ladefoged (2006, 181) notes that vowel sounds are made up of different pitches that occur concurrently during articulation. The distinctive quality of a vowel, when compared to another, is provided by 'overtone pitches' (Ladefoged 2006, 181), and these overtone pitches are called formants. A vowel is therefore characterised by its formants, and the formants in a way represent the changing shape of the vocal tract during articulation (Ladefoged 2006, 182). PRAAT generates a spectrogram for each vowel being analysed, and the formants are represented as dark bands:



Spectrogram 1: Deepti's NURSE, showing clear formant bands of the vowel.

The above spectrogram shows an extract of Deepti's NURSE vowel which illustrates the nature of formants. A vowel is a complex sound which can be decomposed into sine waves of differing frequencies. The formants are constituted by those frequencies which are amplified by the resonance frequencies due to a specific shape of the vocal tract. The

frequency is related to the wave length of a sine curve[19]. The measurement of these frequencies is what allows us to place the vowel in the vocal tract. Care was taken to measure the vowel at its midpoint (the space between the white vertical lines above) to avoid interference from preceding or following sounds. Formant 1 (F1) is linked to the height of the tongue in the mouth whereas F2 represents the level of tongue frontness (Watt and Fabricius 2002, 159). F3 is a formant which is not included in this study (although it was measured) since there is still some doubt as to the effect of F3 on vowel characteristics (although it is so far believed to be linked to roundedness).

The tokens selected for analysis were those that were clear (not corrupted by background noise) and stressed. For GOOSE especially, some tokens (such as 'you') were unstressed and thus not included. Tokens where the vowels were produced immediately following /l/, /n/ or /r/ were also excluded, since these sounds have formant structures known to affect the formant structures of vowels (Fabricius 2007, 299; Di Paolo et al. 2011, 88).

The tokens selected were analysed in terms of separate phonetic environments[20]:

> GOOSE: after coronals, before /j/ and after non-coronals (Mesthrie 2010b, 10)
>
> NURSE: after coronals, after non-coronals. Tokens where NURSE occurred word-initially (as in 'earth') and after /j/ were logged, but excluded since they were rare.
>
> THOUGHT: after coronals, after non-coronals (excluding /w/), after /j/, word initial, after /w/, and in 'ORT' constructions (such as 'sport' or 'shorts').

The environments for GOOSE are known to affect fronting (Mesthrie, 2010b). For NURSE and THOUGHT, however, I expect that vowel height would vary between the groups rather than vowel frontness. Although the coronal/non-coronal environmental distinctions are known for affecting vowel fronting (as is seen in Mesthrie 2010b), I decided to keep these environments separate for NURSE and THOUGHT in order to test whether or not these environments also affect vowels for fronting (and height). Furthermore, these vowels have not been expressly studied in terms of SAIE, and in order to describe their behaviour all options must be considered.

[19] Thanks to Sabine Zerbian for this formulation – personal communication 2011.
[20] For a full table of tokens, see the appendix, section 2.3.

In order to successfully compare speakers' vowels, acoustic differences resulting from differences in anatomy between speakers must be factored out (Watt et al., 2011, 111). There are numerous methods of normalisation, and the method used for this study is the *S*-procedure (Fabricius 2007, 300-1, Watt and Fabricius 2002), which is also called the Watt-Fabricius method. The authors explain that "this procedure calculates each speaker's vowel space 'centre of gravity', or centroid *S* (...), using F1 and F2 values to represent the 'limits' of an individual's vowel space" (Fabricius 2007, 300). In order to calculate *S*, values of three point vowels are required: the lowest F1 and highest F2 (representing [i]), the highest F1 value and the lowest F2, representing [a], and the lowest F1 and F2, representing [u] (Fabricius 2007, 300):

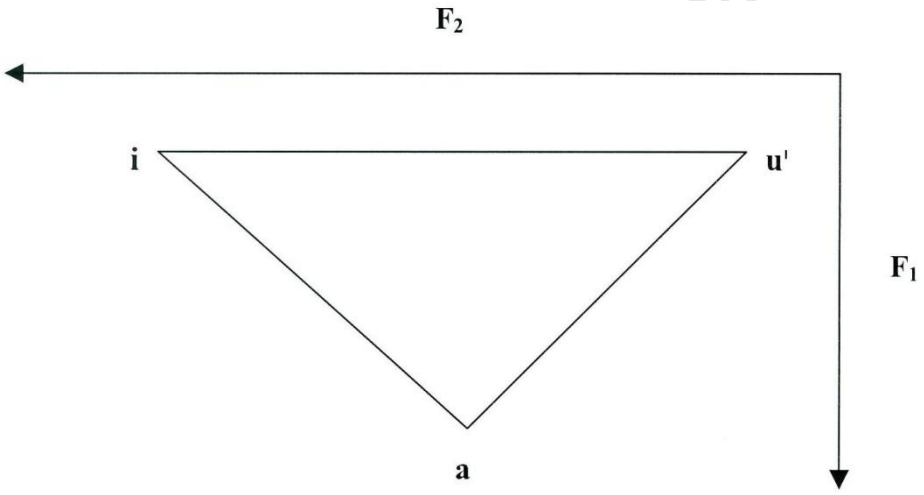


Figure 1: Schematised representation of the vowel 'triangle' used for the calculation of *S*, as presented in Watt & Fabricius (2002, 159).

It is for this reason that the word list style tokens for FLEECE, BATH, STRUT, TRAP and FOOT were added to the analysis. Often, dialects no longer have a fully back GOOSE, in which case the method creates a 'dummy GOOSE vowel' (Mesthrie 2010b, 9). This vowel can be expressed as (Fi;Fj), where F1 of FLEECE = Fi of [u∪]; and F1 of FLEECE = Fj of [u∪] (Watt and Fabricius 2002, 163-4). In other words, the F1 of FLEECE becomes *both* the F1 and F2 of the dummy GOOSE.

Once these three vowels are defined, the 'grand mean' values of the point vowels are calculated by averaging the point vowel values, after which

> Average vowel measurements for each (token) can then be normalised by dividing each average formant value by its corresponding *S*-centroid formant value, so that the formant values are then expressed as ratios of the values of *S* (Fabricius 2007, 300).

The hertz values of F1 and F2, as provided by PRAAT, are then expressed as normalised ratios, ranging between 0.4 to 2.0 for F2, and 0.2 to 2.2 for F1. NORM, the website used to normalise (Thomas and Kendall 2007), provides an option to scale these ratios to hertz, but this is inappropriate for this study since the sample is small (Mesthrie 2010b, 9). The normalised S-values were then plotted on a graph to visualise the results.

2.4. Statistical Approaches

After careful formant analysis of the three vowels, statistical methods were employed to make sense of the data (Butler 1985, vii). Many a time the graph drawn of the various realisations are very clear in the story they tell, but, as Butler (1985, 69) notes,

> "the aim of statistical tests of significance is to show whether or not the observed differences between sets of data could reasonably have been expected to occur 'by chance' (that is, owing to sampling variation) or whether, on the contrary, they are most probably due to the alternation in the variable whose effect is being investigated."

Making use of statistics, therefore, helps to solidify claims made and conclusions drawn from the data, and in turn allows for a better description of GOOSE, NURSE and THOUGHT in SAIE.

In deciding which test to use, various questions had to be answered – the most important question being, 'what am I testing?' In answering this question, a set of hypotheses are set up: a null hypothesis and an alternative hypothesis (Butler 1985, 69). The null hypothesis for this study would be something to the effect of 'there is no difference in F2 between the middle class and working class speakers for GOOSE Coronal[21]. The alternative hypothesis reflects the question(s) asked by the researcher (Butler 1985, 70), and in this case would be something like, 'there is a difference between the F2 realisations of the middle and working class groups, for GOOSE coronal'. In other words, the alternative hypothesis states that the middle class and working class (and White) realisations for GOOSE are not equal, whereas the

[21] The hypotheses will change based on what is being tested. This varies slightly between GOOSE, NURSE and THOUGHT, since these vowels do not behave the same way.

null hypothesis states that they are. In effect, then, the statistical test of the data is testing the null hypothesis, and the aim of the test is to prove that the null hypothesis is false (Butler 1985, 70). To prove that the null hypothesis is false proves that the alternative hypothesis is true.

However, as Butler (1985, 70) notes, it is important to remember that the null hypothesis can never be proven wrong irrefutably – the differences between the realisations of GOOSE Coronal may be as a result of sampling variation. Therefore, to prove a difference as significant is to show that the probability of the difference caused by sampling variation is minuscule (Butler 1985, 70). For the purposes of this study, when the test shows a probability of five percent or less ($p \leq 0.05$), it will be seen as significant in that it indicates that there is indeed a difference between, for example, the F2 realisations of GOOSE coronal between MC and WC speakers.

The data was tested using one-tailed t-tests, since t-tests are best suited to smaller samples (Butler, 1985:84). One-tailed was chosen over two-tailed, since the tests are used to indicate which class has a higher F1/F2 realisation for the three vowels, and in this sense directional predictions are made (Butler 1985, 72). For t-tests to be applicable, however, certain criteria must be met. Butler (1985, 84) explains,

> The t-test makes two assumptions about the distributions of the populations from which the samples are drawn: that they are approximately normal, and that they have approximately equal variances.

The assumption is that the "population from which the sample was taken has a normal distribution" (Underhill and Bradfield 1996, 223), or in other words a 'bell-curve' distribution. If your sample is larger than thirty[22], the Central Limit Theorem applies and the populations have normal distribution (Underhill and Bradfield 1996, 223). The Central Limit Theorem "states that the sampling distribution of the mean is approximately normal even where the distribution within the original population is not normal" (Butler 1985, 75). Since the data is assumed to have normal distribution, parametric t-tests are used as opposed to non-parametric tests (Underhill and Bradfield 1996, 223).

[22] In the case of this study, there are 26 speakers, each with more than 30 realisations of each of the three vowels.

The t-test method furthermore assumes, as noted above, that the classes concerned have approximately equal variances. In some cases, however, it is impossible to prove that the populations in your sample have equal variances (i.e. that the spread of the data is equal), in which case you need to assume that it is unequal, and that they have an approximate t-distribution (Underhill and Bradfield 1996, 221). There is no proof in the data of this study of equal variance.

An important factor to consider in conjunction with the above assumptions is independence. Within a social class, for instance, the realisations for goose coronal must be fairly similar between speakers and should collectively be evenly spread, irrespective of the speaker who produced them. This means that within the group, an individual speaker's realisations of the vowels studied are not dependent on another speaker's. Speaker independence is important in that it ensures that the realisations within each social group dealt with are fairly homogenous in likelihood of occurrence (and necessarily heterogeneous in their values)[23]. If they were not, it would be impossible to compare the speakers to each other in terms of social class. If there are instances where, within the social class, there are significant speaker differences, I have taken this into account by only selecting members of a group who have a similar spread of tokens.

In addition, it was assumed that the sample was representative of the population as a whole. As Milroy and Gordon (2003, 24) note, "any social scientific study which draws conclusions about a large group when only selected members of that group have been observed must be concerned with representativeness". The strength of the conclusions drawn are directly linked to how representative the sample is (Milroy and Gordon 2003, 24), and the population studied here needs to be accurately described since the sample of speakers from each social group is fairly small[24], and limited to age. The assumption made was that the sample of, for instance working class, would be representative of SAIE speaking

[23] Homogeneity and heterogeneity here are used in the statistical sense, meaning that within a group, the speakers are similar enough to group together (in terms of class), although their realisations of the vowels in question are not necessarily the same.

[24] For a discussion on the point of sample size see Milroy and Gordon, 2003:24-6.

working class population between the ages of sixteen and twenty-four of the Durban area. Furthermore, the 'population' of working class speakers of SAIE is limited to Chatsworth and Merebank, since no interviews were conducted in Phoenix (another working class area within the city, 20km from Chatsworth). In terms of the middle class sample, we assume that the sample is representative of Indian youngsters from Durban, since the sample is comprised of speakers from a number of areas within Durban, not just one.

Bearing these assumptions in mind, t-tests were run in Excel. The formulas Excel has regarding t-tests are pre-programmed, requiring only the selection of data, whether it is one- or two-tailed, and whether or not the variance in assumed equal. The results of these tests thus enable us, as mentioned before, to accurately describe SAIE.

2.5. Conclusion

This chapter has provided a detailed description of the methods chosen to gather and analyse the data for this study. The next three chapters provide the results of the analyses for NURSE, THOUGHT and GOOSE respectively.

CHAPTER 3: THE NURSE VOWEL (LONG /ɛ˞/)

3.1. Introduction

Before engaging in the analysis for the three variables, it is important to receive a brief introduction to the vowel system of the speakers in this study. As such, the word list style tokens (bases on Wells' (1972) lexical sets) for the monophthongs for four speakers (two middle class, and two working class) have been diagrammed to provide a bird's eye view of the SAIE vowel system with a very brief overview of interesting occurrences.

Figure 2 contains the vowel charts of the working class speakers with the variables discussed in this study pointed out. It is interesting to note that GOOSE and FOOT and BATH seem quite front for Sartaj, with SIT being quite low.

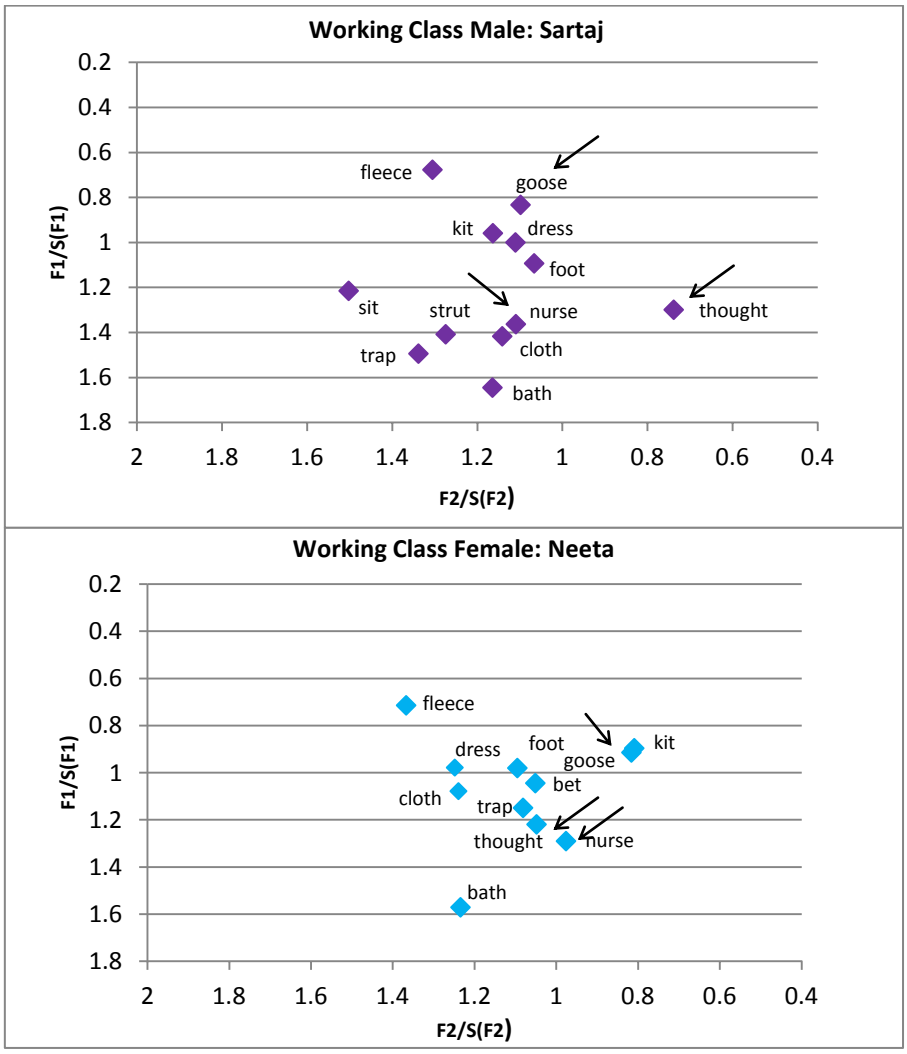


Figure 2: Normalised Word List tokens for Working Class Speakers.

Neeta has a similar system, except that her GOOSE is further back than Sartaj's, and that KIT practically overlaps with it. Her FOOT, THOUGHT and BATH vowels are also fronted.

The middle class (Figure 3) have a slightly different system, with male THOUGHT fully back; and GOOSE and FOOT fronted. Sakina on the other hand has a fronted THOUGHT and BATH, with GOOSE slightly further back than the Madhur's. All the speakers (both MC and WC) show NURSE as being central to back.

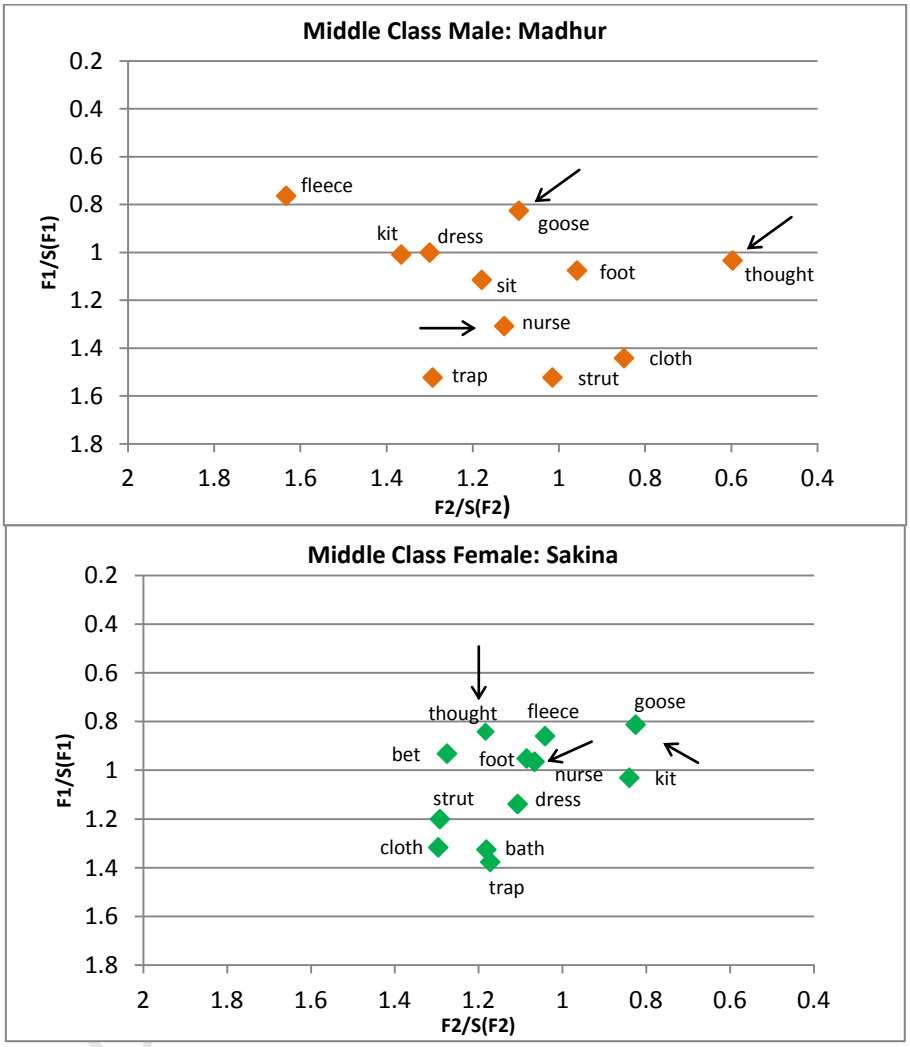


Figure 3: Normalised Word list tokens for Middle Class Speakers.

An interesting occurrence is the position of DRESS/BET, although it is not a variable in this study. Sartaj and Sakina have fairly back realisations of this vowel[25] where the other two speakers have fairly front realisations. Mesthrie (2004, 956) notes that DRESS in SAIE is usually [ɛ] or slightly centralised [ɛ_]. This differs from general the SAE raised equivalents. The backness of DRESS for Sartaj and Sakina is thus slightly unexpected. However, careful re-

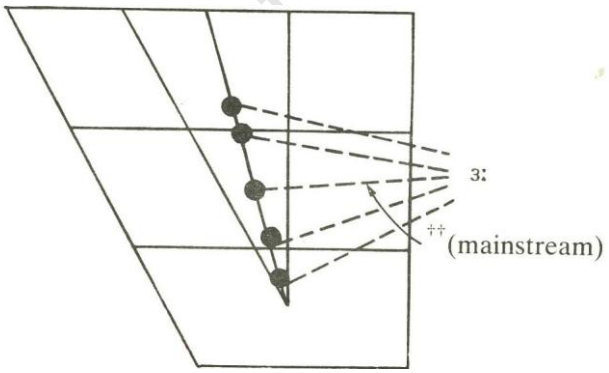
[25] Bearing in mind that there is some dispute as to the accuracy of formant analysis when a vowel is preceded by /r/ or /l/

analysis was undertaken and these realisations proved accurate[26]. Neeta and Sakina have both BET and DRESS in their word lists[27], and they realise these in opposite ways, DRESS being fronter than BET and vice versa. This shows to some extent that /r/ indeed causes some differences in vowel realisations, and an interesting future study would undertake to tease out the precise influences and whether /r/ and /l/ cause backing or not.

Although the initial research question sets out to determine the differences between middle class and working class groups, there were so many differences within each group (particularly in the middle class group) that it is important to tease these out first, before looking at the results of the groups as a whole.

3.2. Introduction to NURSE.

In Received Pronunciation (RP), NURSE is the only accented vowel in the central area and Gimson (1989, 124) notes that a high degree of "tongue raising" is permissible. As such this vowel varies according to height in RP, with level of frontness not varying to a significant degree:



Graph 1: /ɜ˞/ and all its variants in RP (from Gimson, 1989, 123).

The variants of NURSE in RP range from "a sound in the half-close region or slightly above to the half open region or slightly below" with the mainstream variant in the middle (Gimson 1989, 124). Mesthrie (2004, 957) described, based on data from 1992 and the early 2000s, the usual variant of NURSE in SAIE as a mid-central, unrounded vowel which is slightly closer

[26] In addition to the word list style token for dress, a couple of casual style tokens were also analysed, showing realisations of dress as being slightly unstable in that they range from being front-ish to back-ish.
[27] Only after many interviews had been done did the issue of /r/ and /l/ formant distortion come to light. This would also apply to FLEECE.

than RP. He furthermore notes that a variant of this vowel amongst the middle class, especially female speakers, is similar to RP, but may be fronter and lower.

The tokens for NURSE were analysed and compared according to phonetic environment per social group, and per gender. As mentioned before, NURSE is a variable that has not been studied in much depth in SAIE, which resulted in little clarity as to which environments to separate the data into, if any. After logging all occurrences of NURSE, it became apparent by inspection that only three environments were discernable: coronal, non-coronal and word-initial.

Group	Coronal	Non-Coronal	(Word Initial)	Total
WC Female	70	174	(5)	244
WC Male	39	106	(1)	145
MC Female	74	155	(5)	229
MC Male	65	152	(1)	217
W Female	39	52	(0)	91
W Male	30	84	(0)	114

Table 5: Number of normalised tokens for NURSE, per environment.

As Table 5 shows, there were far too few tokens for word-initial to make fully substantiated claims as to vowel behaviour in this environment, as its numbers lie far below the required number for statistical purposes. Therefore, NURSE in SAIE is being discussed in terms of its behaviour after (a) coronals (e.g. *dirt)* and (b) non-coronals (e.g. *world*). For short these environments will be termed the coronal and non-coronal environments respectively. The format of discussion will be the same as follows: it deals first with the female group, then the males, and then a gender comparison.

There are instances where comparing groups as a whole is inappropriate statistically. For example, there are times when, within the Indian MC group, there are three distinctly separate realisations for a vowel within a certain environment. The MC Indian group, therefore, is clearly not homogenous enough to be grouped together statistically. In other words, their realisations of NURSE are too different to allow them to be grouped together. In these cases, the t-tests were carried out based on the groups within the social groups, as will become evident shortly. The t-test results are only provided in instances where the graphs are unclear in showing significant differences.

3.2. Results: Females

The results for the NURSE vowel in the coronal environment are very varied, both along the F1 and the F2 plane. As such, the differences between the MC and WC speakers will be discussed in terms of F2 first, and then F1, and where necessary the MC and WC groups will be discussed separately. The graphs depict mean values for all the tokens produced by each speaker, and as such the statistical differences may not look significant when only considering the position of the mean values on the graphs. Where appropriate, graphs depicting the full range of realisations for each speaker are in the appendix (Section 3) which would clarify the statistical results since these were the values used in the statistical tests.

Figure 4 depicts clear variation for the MC group in the coronal environment. There are three different levels of frontness in their realisations (indicated by vertical lines on graph): Three appear fairly front, with two fairly central and a single backish realisation.

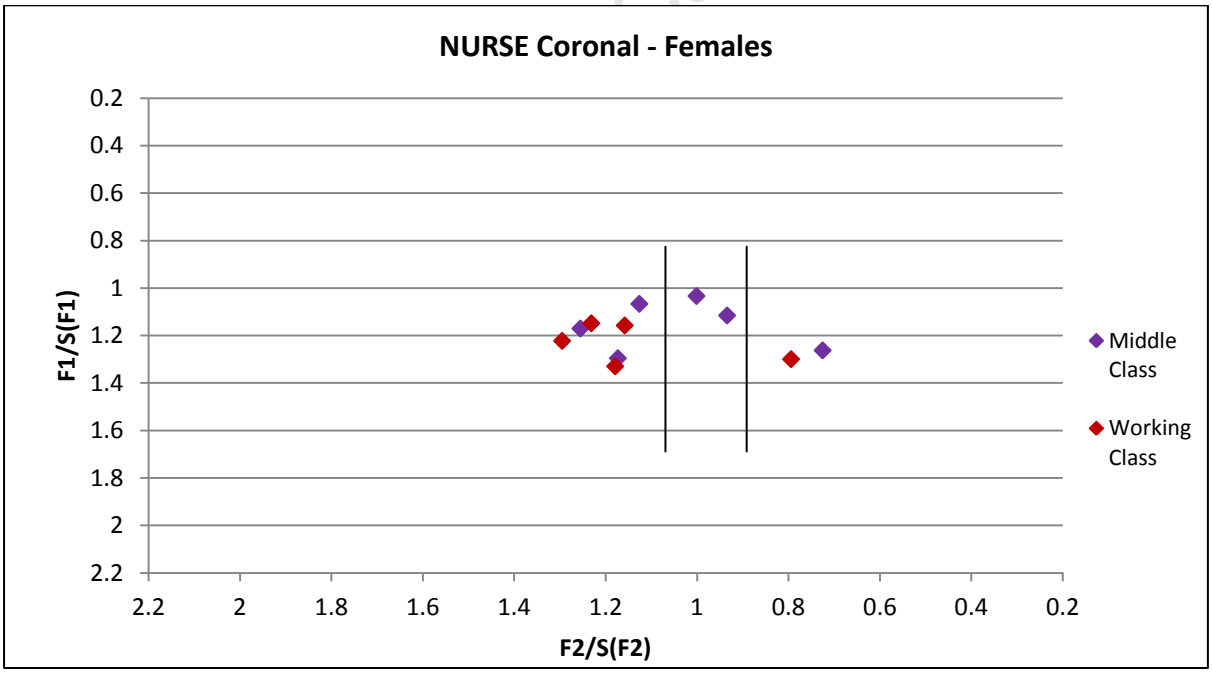


Figure 4: Normalised Mean Values for NURSE Coronal for females per social class, showing levels of frontness.

T-tests show that the first three realisations are not significantly different from one another[28], but they are significantly more front than the second two. As Mesthrie (2004,

[28] p=0.3713; p=0.0762; p=0.2954

957) notes, there may be overshooting of the central environment to slightly fronter realisations (especially for MC females), which possibly accounts for the variation in frontness for this group. The speaker furthest back is significantly further back than the other MC speakers. Since there is only one speaker producing NURSE this far back for the MC group, she is an outlier.

The WC speakers are less varied in the level of frontness, with the majority of speakers having realisations that are fairly front, with one speaker (hence an outlier) producing NURSE much further back. Removing the outlier leaves a uniform realisation of NURSE in the coronal environment, showing a WC norm quite clearly. The frontness of the WC realisations of NURSE is not significantly different to the frontness of the first three MC realisations. They are, as a result, also significantly fronter than the second two MC realisations, and interestingly, the MC outlier and the WC outlier are not significantly different to one another in terms of frontness (p=0.4767).

It is evident that the MC speakers have not settled on a norm for frontness for NURSE Coronal, with two significantly different realisations emerging from the data. The WC speakers show less variation than the MC speakers, with the majority of speakers having decided on the same level of frontness. Excluding the second set of MC realisations, the MC and WC speakers show no significant differences in frontness, with even the outliers of each group being similar to each other. In the coronal environment the MC and WC groups therefore do not show much difference in terms of frontness, save that the MC has more variation.

Turning now to height variation (Figure 5), it seems that there are many internal differences in height with the MC group, with the values ranging from just over 1.0 to about 1.3. The t-

test results[29] show three separate and overlapping realisations in terms of height, as indicated by the horizontal lines.

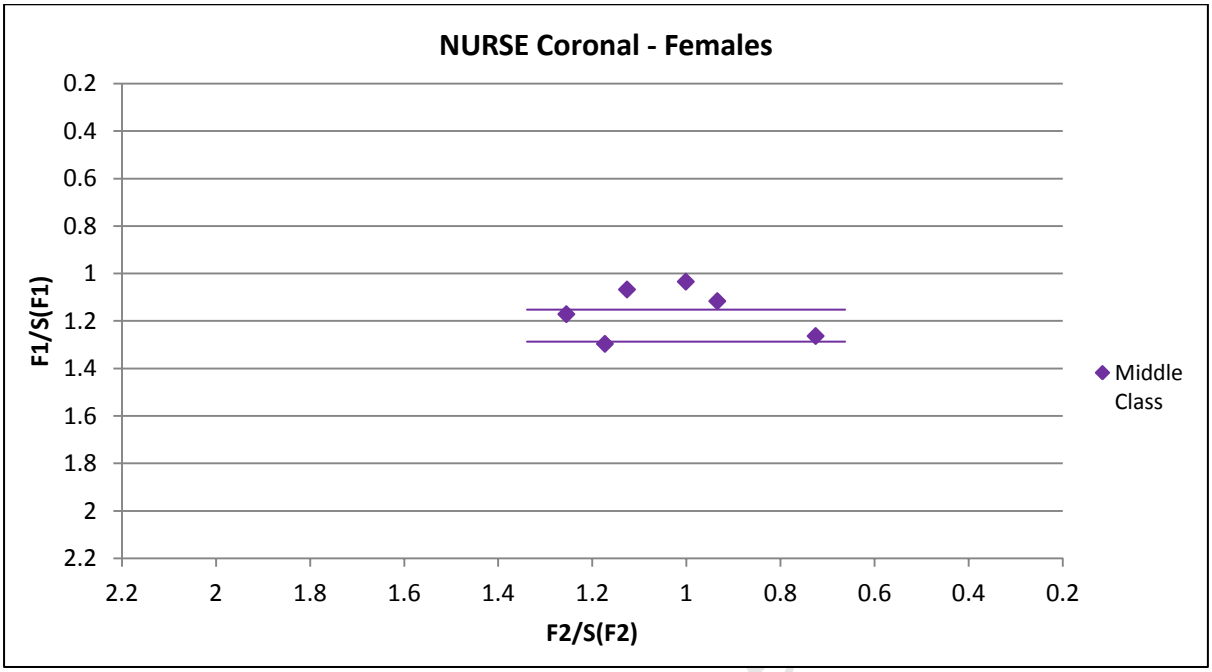


Figure 5: Normalised Mean Values for NURSE Coronal for females, showing significant height differences.

There are three realisations which are the highest, followed by two lower realisations, with a single realisation at the lowest point. As is illustrated on the graph certain realisations overlap with others (with the dividing line touching overlapping realisations). One realisation of the 'high'[30] group overlaps with one realisation from the 'mid' group (p=0.1258), and one realisation from the 'mid' group overlaps with the single 'low' realisation (p=0.6395). MC speakers show high degrees of variation along F1, and have not yet established a norm.

The WC group has a much less complicated pattern of height variation (Figure 6). All the speakers within the circle do not differ from each other significantly in terms of their F1 values[31]. Two of those members, however, are not significantly different to the speaker outside of the circle (p=0.1256 and p=0.4203), so there is a degree of overlap.

[29] Speakers were tested against each other since no obvious pattern emerged..
[30] These labels are used for ease of reference, and do not indicate anything concrete about the positioning of these vowels.
[31] Refer to the graphs in the appendix showing all the tokens per speaker which will clarify this result.

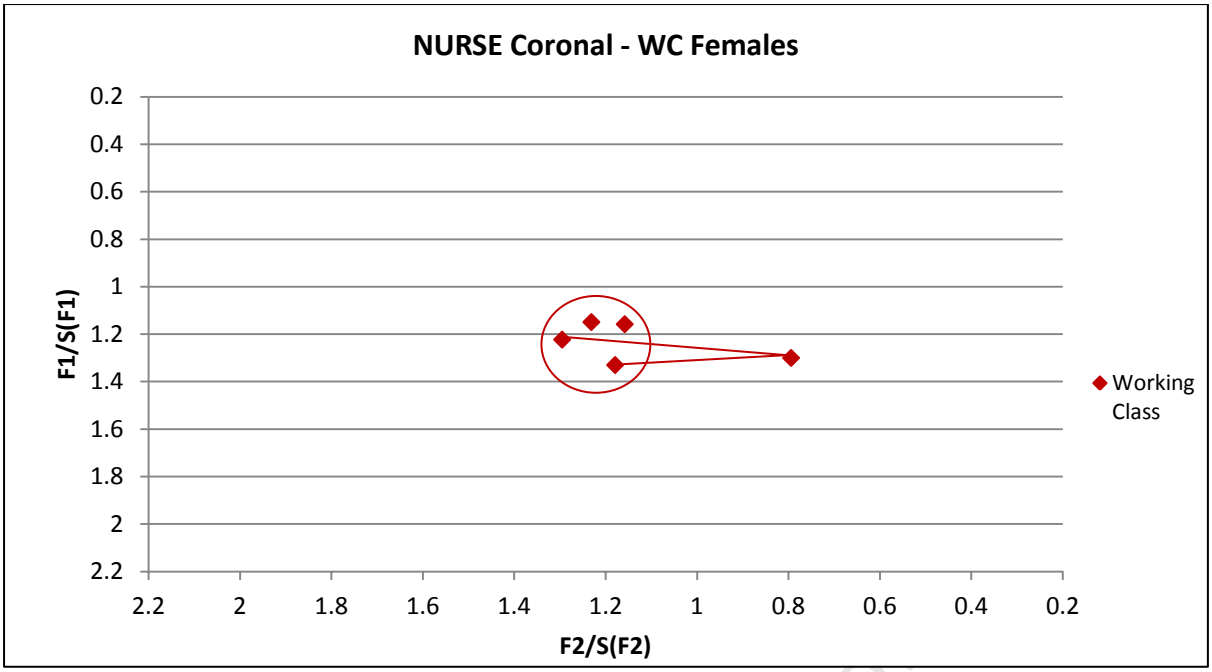


Figure 6: Normalised Mean Values for NURSE Coronal for WC females grouped according to height

When compared to the MC group there are clear similarities in height (Figure 7). The WC speakers within the circle have similar height values than the 'mid' realisations of MC (excluding the overlapping members). The speakers who were outliers for F2 are also similar to each other for F1 (p=0.476), which indicates that these speakers, generally speaking, are not outliers that should be excluded comprehensively. The MC 'high' realisations are significantly higher than the other MC and WC realisations.

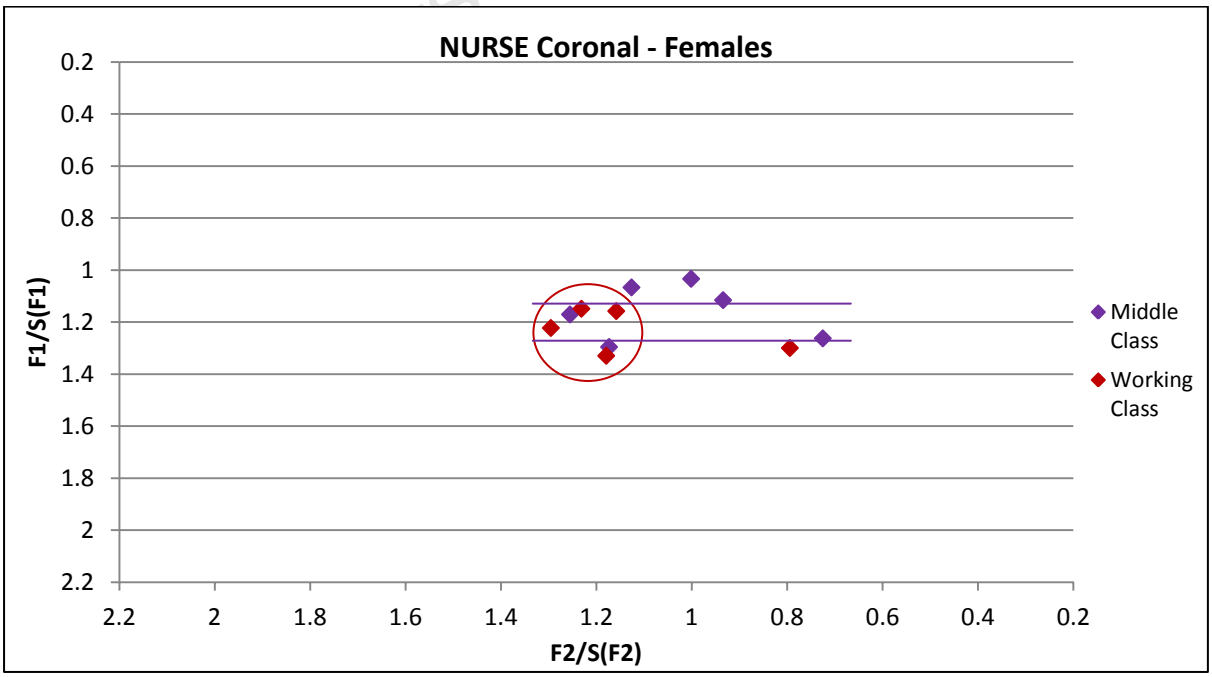


Figure 7: Normalised Mean Values for NURSE Coronal for females showing height differences.

For height in the coronal environment for NURSE, the MC speakers show a large degree of variation, and have clearly not committed to a single norm. The WC speakers on the other hand have largely the same level of height, indicating that to some extent there is a norm for height. The MC and WC speakers overlap considerably once more, except that some MC speakers have higher realisations.

In the coronal environment, therefore, the MC and WC speakers do not show major differences in their realisations of NURSE. There are no differences along the F2 plane, except that the MC speakers have a higher degree of variation. For F1 the only difference is that some MC speakers have higher realisations than the WC (and some MC) speakers. The fact that there are not many differences between MC and WC is an unexpected result, since our initial hypothesis was that there would be social class differentiation. It seems that realisations for NURSE Coronal are diffuse for MC (and to some extent for WC), with speakers not differentiating themselves according to social class for this variable.

There are some differences between the MC group and the White reference group for NURSE in the coronal environment (Figure 8). More importantly, there are significant differences between the two reference group speakers, with one speaker having a significantly fronter realisation than the other[32]. This speaker clearly has much fronter realisations than the MC (and by extension the WC) groups. The second White speaker displays the same level (p=0.4632) of fronting as the MC group who is in the middle of the fronter and backer realisations of MC. This is the only MC group not overlapping with any WC groups in terms of fronting, and it shows some similarities to White norms.

[32] As mentioned before, Bekker (2009, 393) noticed fronting of this vowel in his study of White female speakers, and perhaps this difference is indicative of a change in progress among the White speakers.

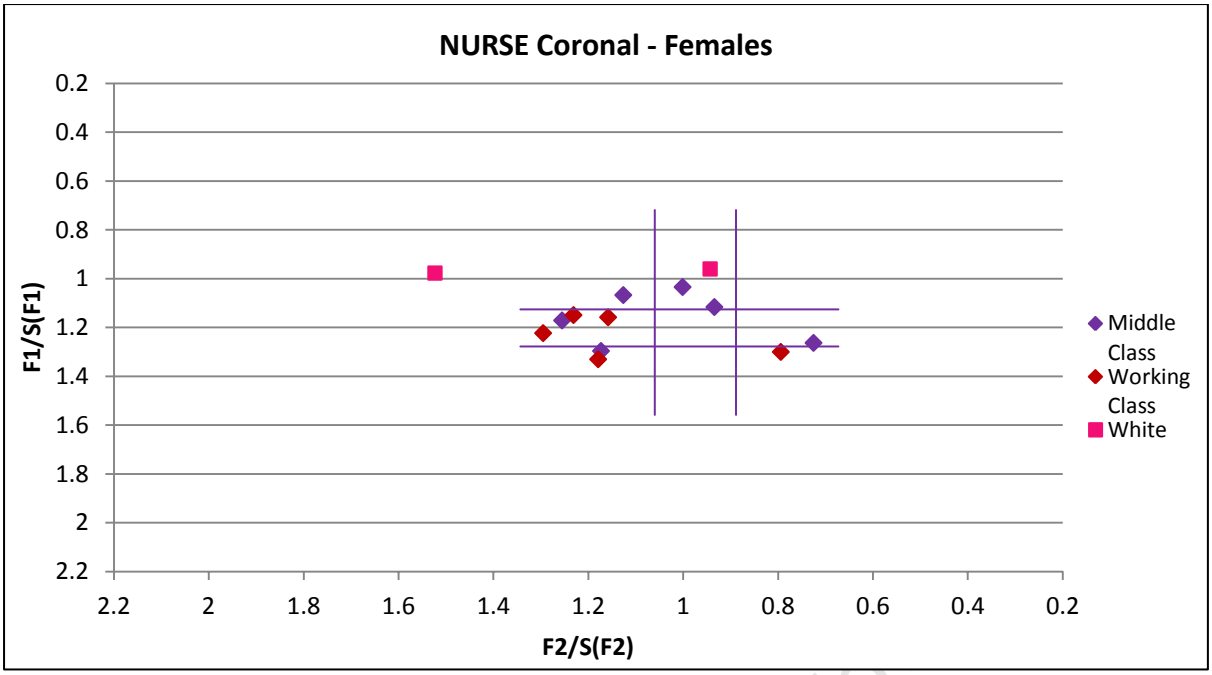


Figure 8: Normalised Mean Values for NURSE Coronal for females, including reference group.

The White speakers are not different to each other in their level of height (p=0.2623), but are realising NURSE Coronal significantly higher than all the MC (and WC) speakers[33] (Figure 8). Some MC speakers have height values that are almost the same as the Whites speakers, while others maintain lower realisations. Incidentally, these speakers share features of both height and level of frontness with WC speakers, while those who have realisations more similar to White norms, do not.

In the non-coronal environment (Figure 9), the picture is very different, with the MC group being exceptionally diffuse. In terms of the level of frontness, the realisations range from just under 0.8 to about 1.5. Visually, there are no clear similarities between any MC speakers, except the realisations falling between 1.2 and 1.4. The WC non-coronal realisations are very similar to their coronal realisations; with the majority of speakers producing fairly front NURSE, with one outlier far back.

[33] p=2.91014E-10, p=3.87124E-05, p=2.0710E-05.

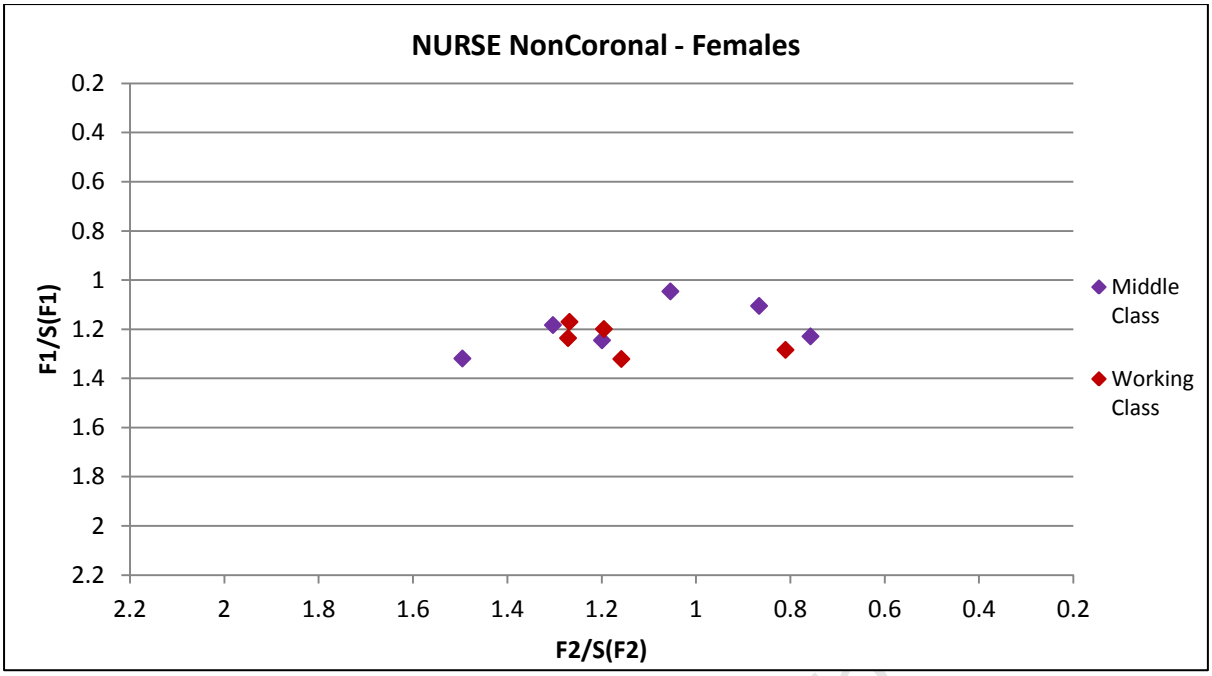


Figure 9: Normalised Mean Values for NURSE Non-Coronal for females per social class, showing levels of fronting.

The results of the t-tests confirm the initial impression of the MC data, showing little focusing on a norm in the MC realisations of NURSE in this environment (indicated by the vertical lines on Figure 10).

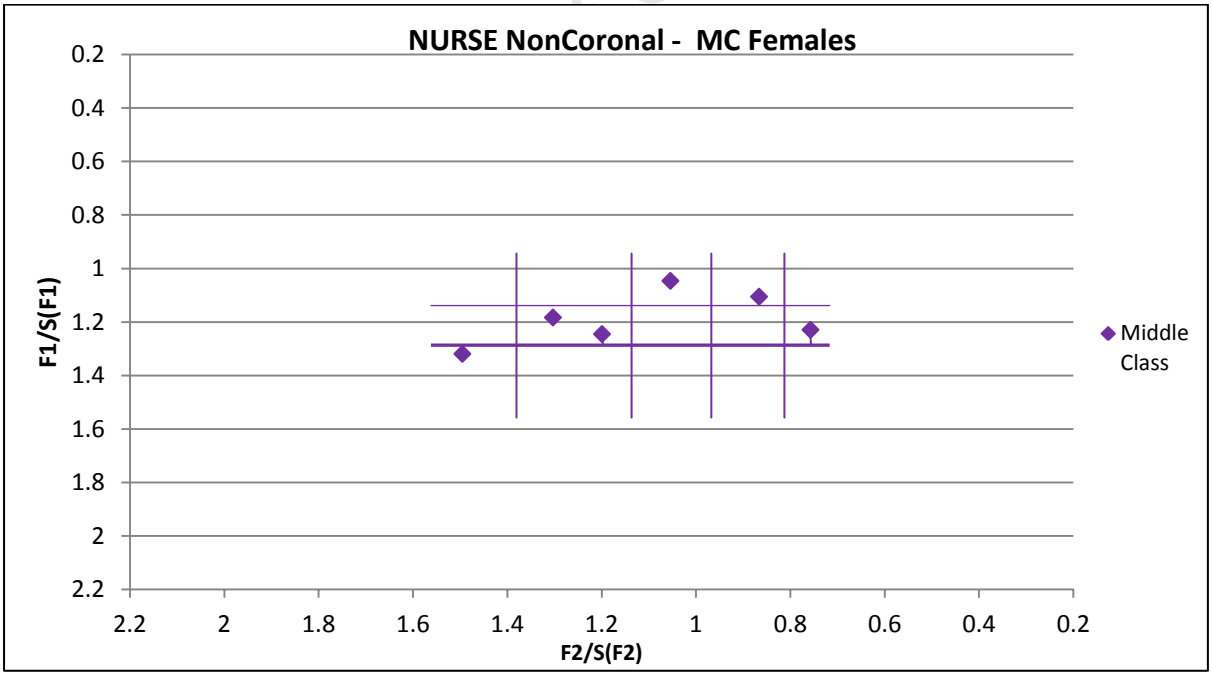


Figure 10: Normalised Mean Values for NURSE Non-Coronal for MC females, showing levels of fronting and height.

There are four separate realisations of NURSE, with only two speakers showing no significant difference in frontness (p=0.06). In terms of vowel height, there are also a number of differences in the MC realisations (horizontal lines), but as opposed to frontness, the MC

speakers show more overlap. There is a single speaker who has a fairly high pronunciation, followed by another speaker who has a significantly lower realisation (p=0.0208)[34]. The majority of MC speakers are realising NURSE as 'mid' in this environment, with two of these speakers overlapping with the lowest realisation (p=0.1358 and p=0.0938), as indicated by the thicker line.

The MC realisations for NURSE Non-Coronal (Figure 10) are more diffuse than for NURSE Coronal. There is no overwhelming norm for either frontness or height, with each speaker almost being completely independent of the other. The most uniform results are the fairly front realisations of two MC speakers, and the mid quality for the three of the MC speakers. This high level of variation indicates that the dialect is in a kind of transition period. However, with such a small sample it is nearly impossible to predict the direction of the transition.

The WC speakers show much more uniformity than the MC speakers (Figure 11), with the majority of the speakers producing NURSE fairly front. There are, however, three significantly different realisations (vertical lines). The first two realisations match each other for frontness (p=0.4658), and the second two are also similarly front (p=0.1475). The first two are significantly further forward than the second two (p=0.0043). Only one speaker is significantly further back than the rest, and is a clear outlier.

[34] There is no line drawn between these two realisations since it would over-complicate the graph.

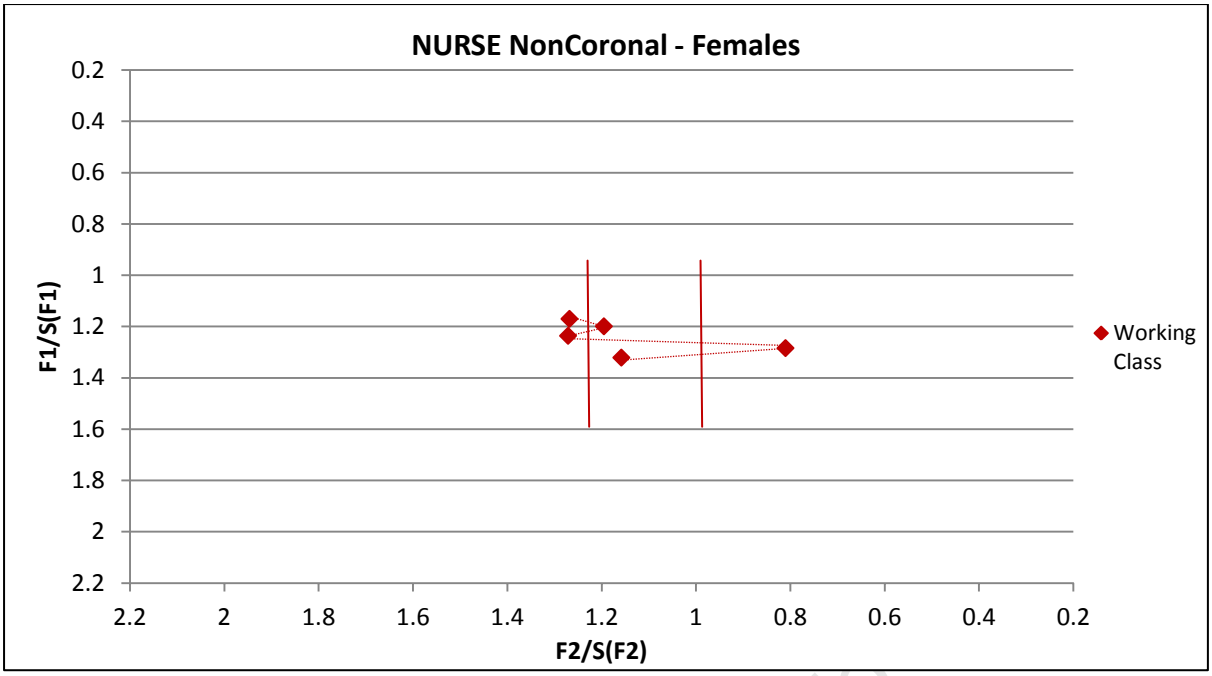


Figure 11: Normalised Mean Values for NURSE Non-Coronal for WC females, showing levels of fronting and height.

In terms of height, the WC speakers display some variation with overlap. The dotted lines in the graph (Figure 11) connect speakers who are not significantly different from one another in terms of height. There is a clear staggered pattern, with each speaker showing no difference to at least one other speaker. There is no clear norm here: the significant differences and similarities overlap consistently, with all the WC speakers being connected to each other in some way. The WC group shows a larger degree of cohesion than MC. There are indeed differences between the speakers in terms of height and frontness, but there is also a greater degree of overlap between speakers, where the MC speakers were almost individual in their realisations.

When comparing the MC to the WC (Figure 12), there are some differences as well as some overlap. In terms of frontness, there are no significant differences between the MC and the WC groups on either side of the line. The one group is significantly more front than the other (as discussed above), but in each case there is overlap of MC and WC.

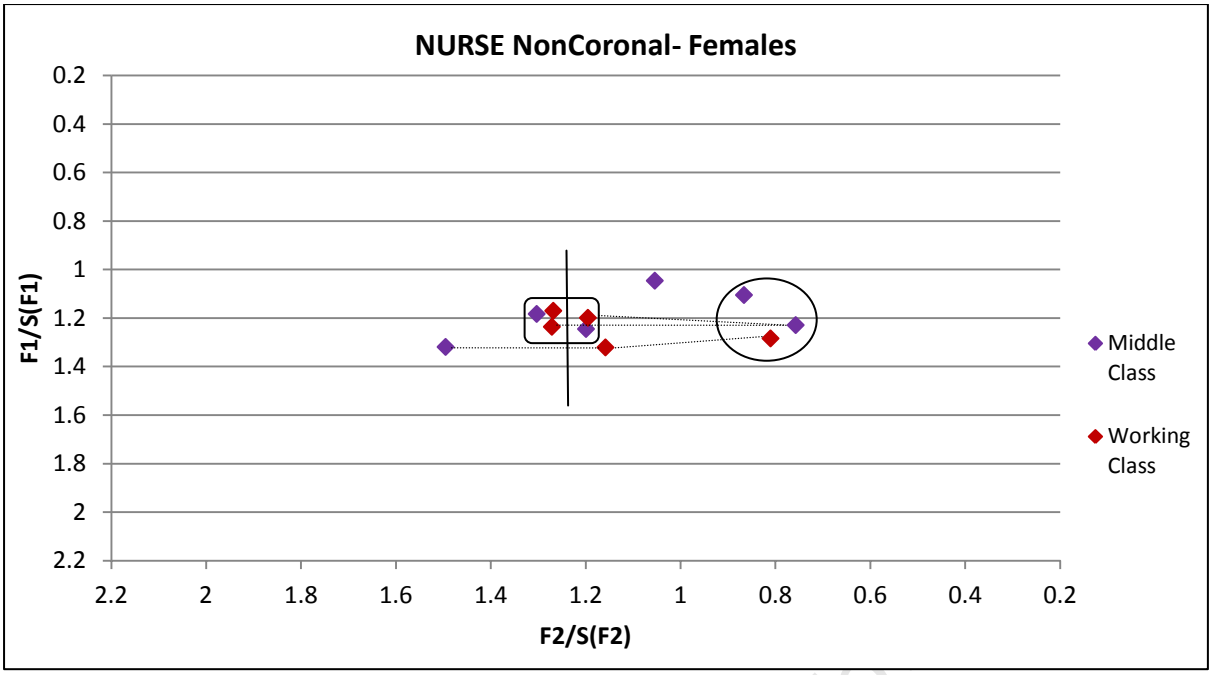


Figure 12: Normalised Mean Values for NURSE Non-Coronal for females, comparing fronting and height.

The WC outlier does not overlap with any MC speakers (contained in the circle), being significantly fronter than one MC speaker (p=0.0334), and significantly backer than the other (p=0.0018). The height differences between the two social classes are slightly more complicated: the speakers connected with the dotted line are all displaying the same level of height for NURSE, and the speakers contained in the square all overlap in terms of height. Interestingly, the speakers who overlap for fronting also overlap for height (excluding of course those connected by the dotted lines). The WC outlier is not similar to the MC speakers in the circle, being significantly lower than both these speakers (p=0.0167 and p=6.70436E-13[35]).

As was the case for NURSE in the coronal environment, the MC and WC speakers overlap to a large degree, contradicting our initial hypothesis of growing class differentiation. The MC speakers again show more variation and diffusion than WC, which is the only real difference between the groups. It would appear that the MC speakers often do not differentiate themselves according to class in terms of height or frontness, but since their realisations are so different from one another this cannot be proven irrefutably. As mentioned before, it

[35] Where a number appears in such a format, it indicates that there are a large number of zeros in front of the first number. I.e. 6.70436E-13 would read 0.0000000000000670436, which is a highly significant result. Using the 'E-' format is an abbreviation to ease reading.

appears that the MC speakers are in a period of transition given their highly varied and non-cohesive realisations of NURSE (both in coronal and non-coronal environments). There is a clear difference, however, between the diffuse nature of MC realisations and the more focussed realisations of the WC.

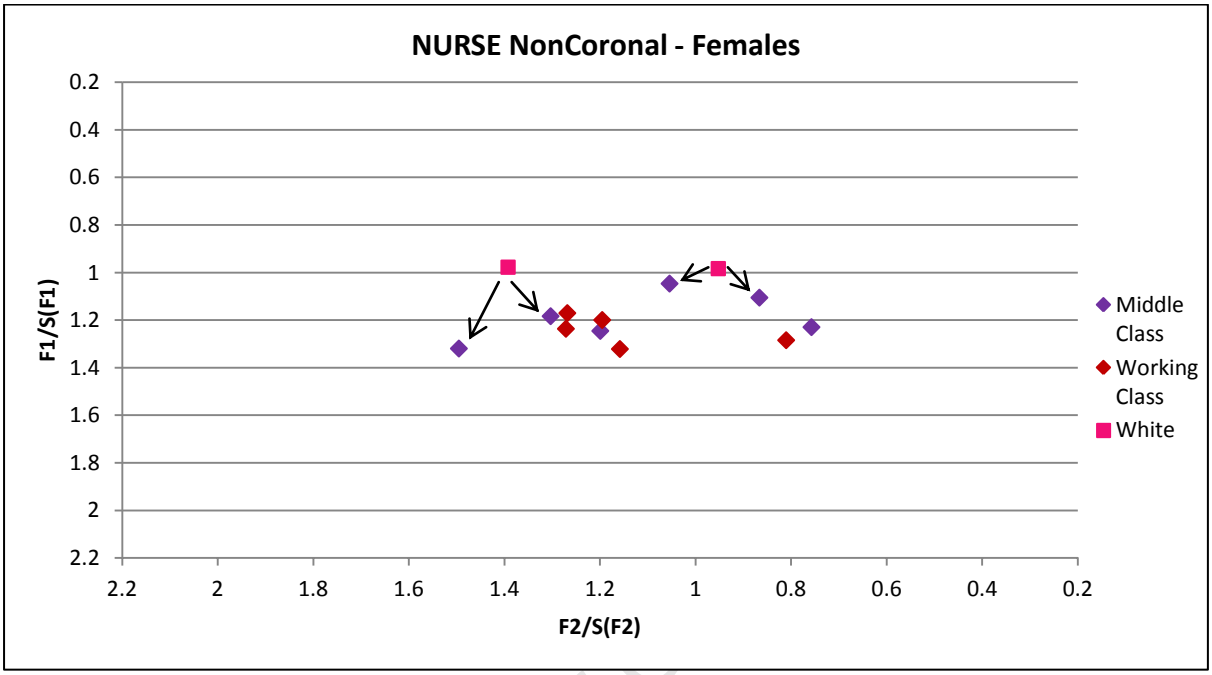


Figure 13: Normalised Mean Values for NURSE Non-Coronal for females, including reference group.

Once again the White reference group shows (Figure 13) significant differences within themselves, with one speaker being significantly further front than the other (p=2.95E-07). They do not show any significant differences in terms of height (p=0.3751), and are significantly higher than all the MC groups[36]. In terms of frontness, the MC groups show some overlap with the reference group, with both White speakers showing similar frontness to two (separate) MC speakers, as indicated by the arrows[37]. Again there are no clear-cut class patterns, insofar as the MC and WC show considerable overlap. It seems that this vowel has no clear patterns of variation based on phonetic environment, with the coronal and non-coronal results being very similar.

[36] p=0.0063 for the highest MC speaker tested against the White group.
[37] For the frontest White speaker: p=0.1783 and p=0.0813. For the second White speaker: p=0.06 and p=0.0725.

3.3. Results: Males

The males have slightly different results to the females (Figure 14), looking immediately more spread out along the F1 plane (from just above 1 to about 1.3), with a smaller range of F2 (about 0.9 to just over 1.2). The MC speakers present a nice pattern, showing a 'stepladder' picture going backward whilst going upward. The WC speakers are bunched just above the MC speakers, showing almost no differences in F2 or height, with two possible outliers much lower down.

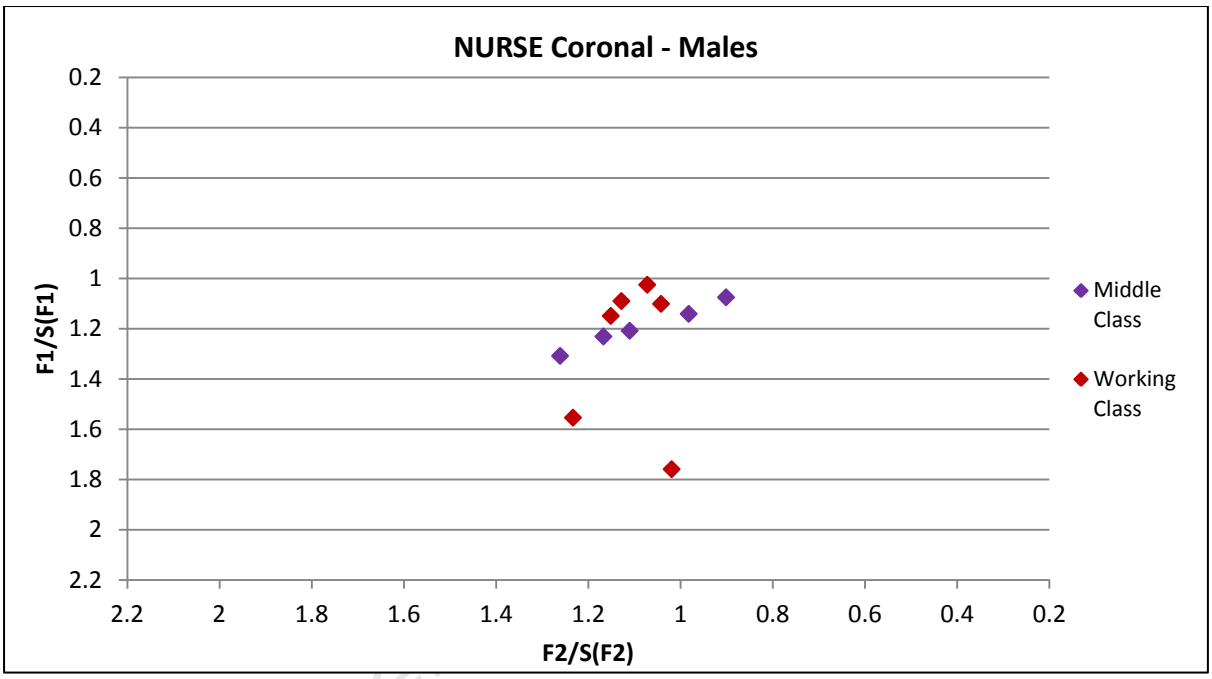


Figure 14: Normalised Mean Values for NURSE Coronal for males per social class.

Looking more closely at the MC speakers (Figure 15), it emerges that there are three different realisations in terms of frontness (vertical lines) and height (dotted lines). The first speaker has the frontest and lowest realisations in this environment, followed by two speakers who are both significantly higher and backer (p=0.0005 and 8.41667E-05), followed in turn by two speakers who are again higher (p=0.0058) and backer (p=0.0017).

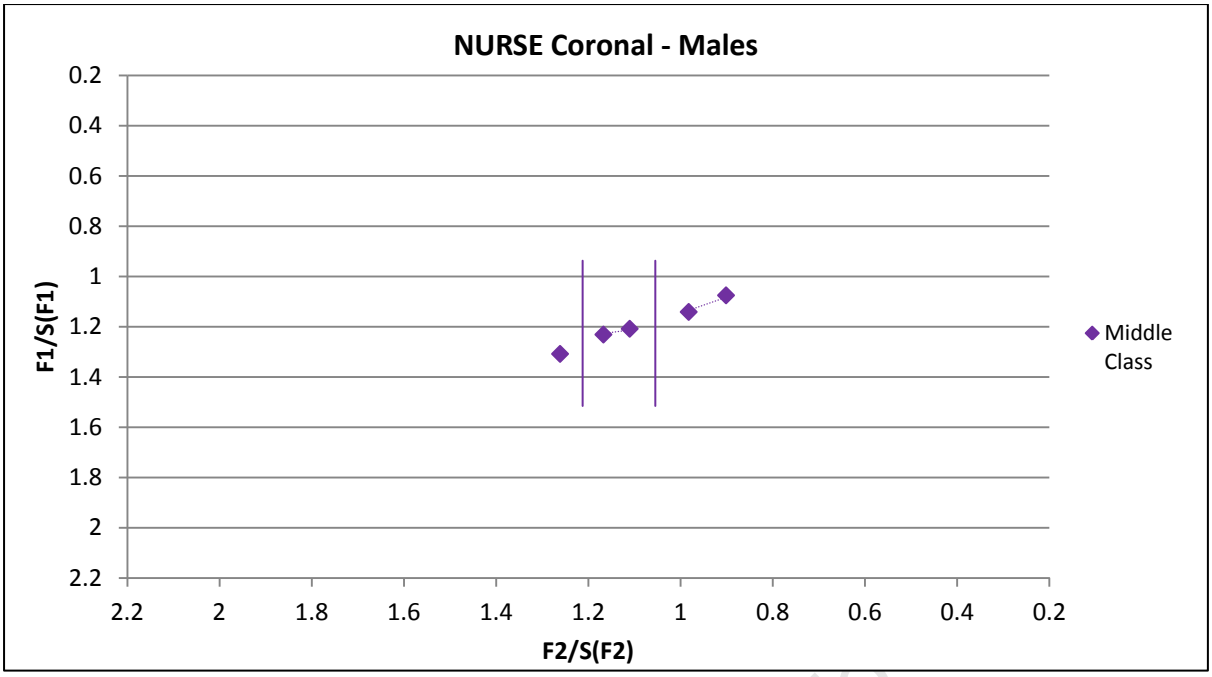


Figure 15: Normalised Mean Values for NURSE Coronal for MC males, showing height and fronting differences.

The first speaker is the only speaker not overlapping with any other speakers, and is as such as outlier. Removing the outlier leaves only two realisations: one that is 'mid' and fronter, and one which is 'high' and backer. The MC males show much more uniformity than the MC females in this environment. Although there are indeed differences between the speakers along F1 and F2, the speakers are not individual in their realisations and form a clear pattern of the height-frontness relationship. The variation, however, does show that there is no specific norm for the realisation of this vowel for height or frontness. Again, there is a gender difference.

The majority of WC speakers agree on the level of frontness (Figure 16), with only one speaker being significantly different (separated by vertical line). Excluding this speaker as an outlier, there is complete uniformity among the WC speaker for frontness of NURSE in the coronal environment. In terms of height, the t-tests show three separate realisations (those similar are joined by a dotted line). There is one speaker who is significantly higher than the rest of the speakers above the horizontal line (p=0.0050), even though this does not show

up clearly on the graph[38]. Quite clearly, there is a significant difference in height between those speakers above the line and those below.

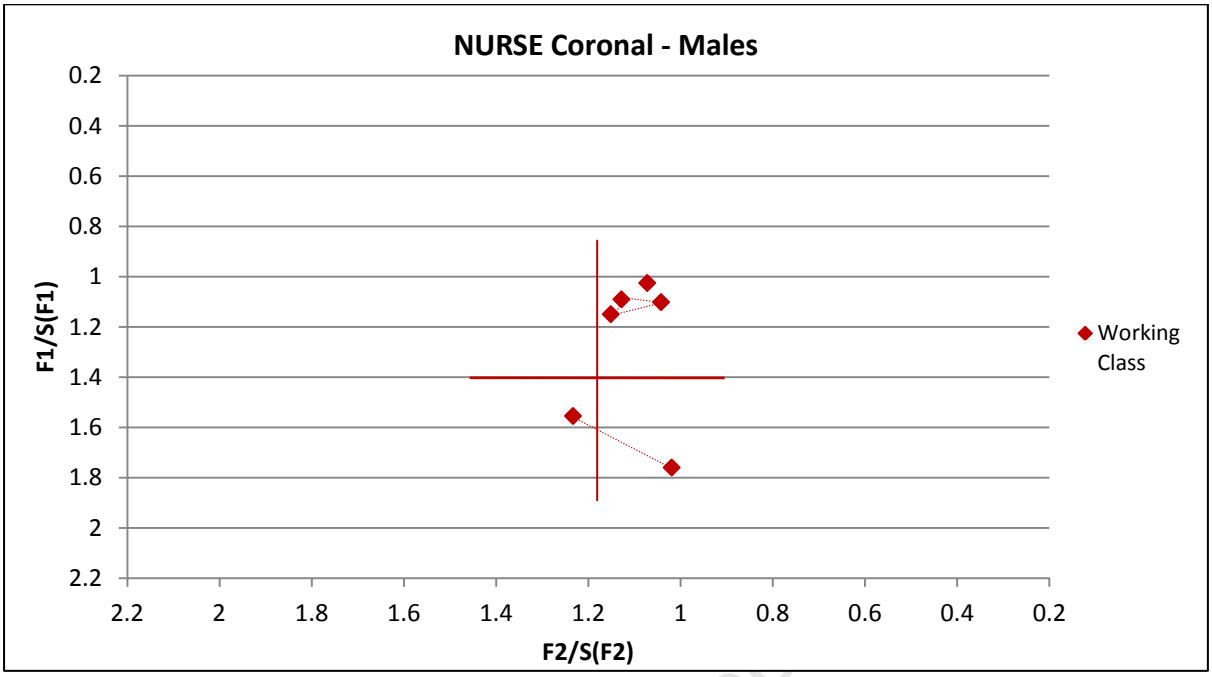


Figure 16: Normalised Mean Values for NURSE Coronal for WC males, showing height and fronting differences.

The realisations for NURSE in this environment are drastically different in terms of height, with realisations almost at polar opposites of the graph. If the bottom two realisations did not match each other for height (p=0.1649) they would have been regarded as outliers. (Again the means used to draw the graph mask this statistical significance, see appendix). However, it seems that there are two definite realisations for height (excluding the single speaker who is higher than the rest) indicating that the WC speakers have not settled on a norm in this regard. There is a clear norm for frontness, and the variation along F1 indicated a possible transitioning phase in the WC group.

In comparison to each other, the MC and WC groups, as expected by now, show some similarities and some differences (Figure 17). In terms of frontness, the WC speakers overlap with MC (indicated by the vertical lines). The MC speakers to the right of the thickest line overlap in level of frontness with the MC speaker at the bottom (as indicated by the ticker line). For each MC realisation of NURSE Coronal, there is a WC overlap in terms of frontness.

[38] See Appendix for a graph depicting all the tokens of NURSE coronal as produced by these males, which should clarify the statistic result.

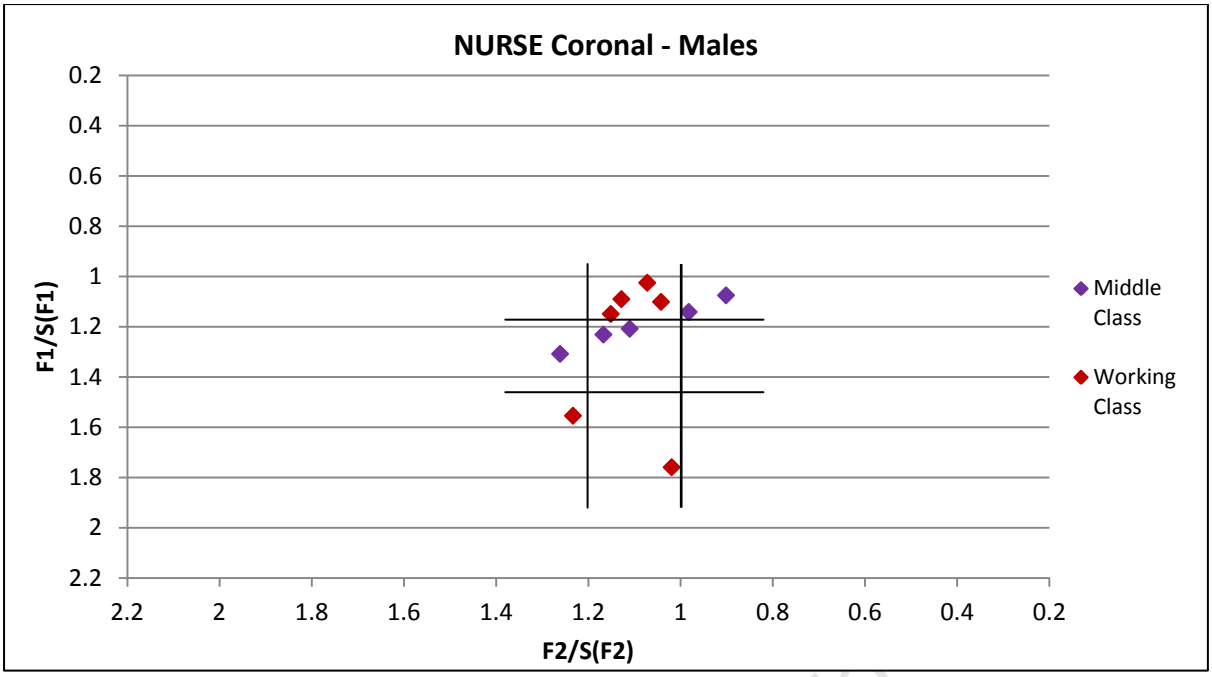


Figure 17: Normalised Mean Values for NURSE Non-Coronal for males, comparing fronting and height.

The pattern for height (indicated by the vertical lines) is slightly different. The two WC speakers at the very bottom are clearly significantly lower than all the MC realisations. The other WC speakers show some overlap with MC speakers, but are also significantly higher than two MC realisations (p=6.96152E-06 and p=0.0015). The males, in this environment, show significant overlaps with each other, with the only differences between MC and WC being height for two groups. This shows that there may be some class differentiation, but that this is by no means a general occurrence since there are more overlaps than differences. Furthermore, it appears that both MC and WC males are still negotiating a norm for NURSE Coronal due to the variation intra-class.

As depicted in Figure 18, the males in the White reference group (as is the case for the females) have realisations which are significantly different from one another in terms of height (p=0.0019), but are similar for frontness (p=0.0763). The MC speakers between the vertical lines overlap with the White speakers for frontness (p=0.4144), while the other MC realisations are either fronter (p=7.74713E-07) or backer (p=0.020). Incidentally, the MC speakers who overlap with White frontness norms also overlap with the majority of the WC. The MC and White speakers above the vertical line overlap for vowel height (p=0.1702), as

do as those below the line (p=0.2600 and p=0.1233). The White males overlap with MC males to a much greater extent than the females.

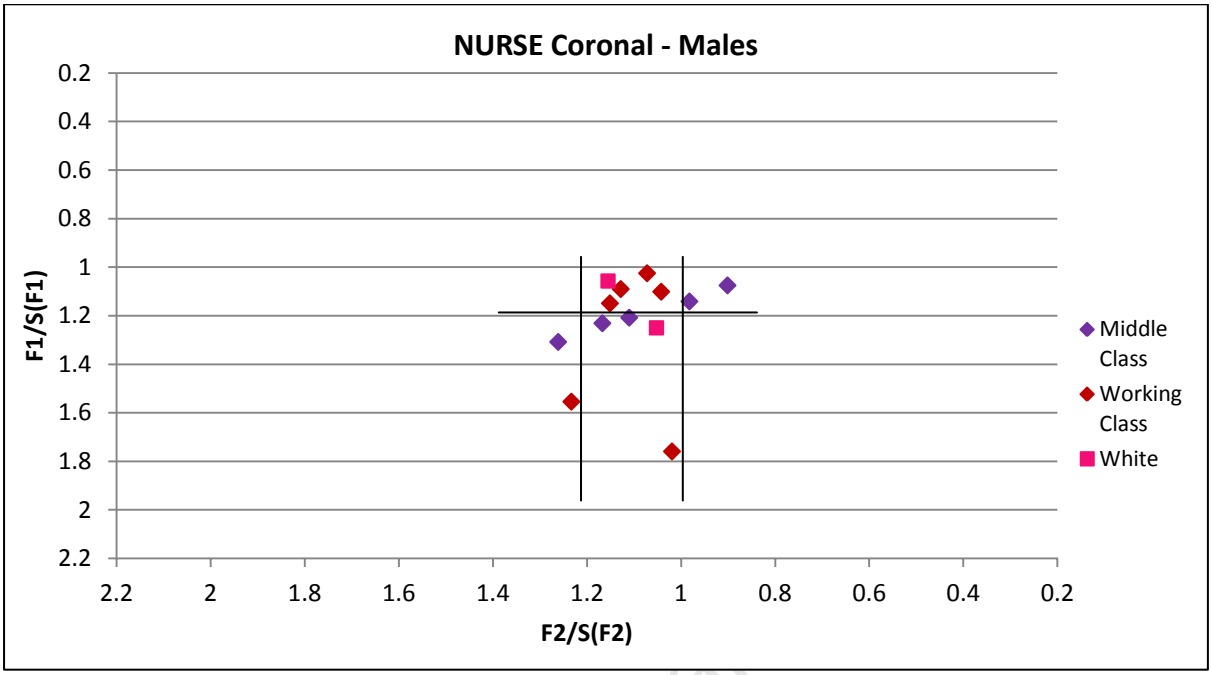


Figure 18: Normalised Mean Values for NURSE Coronal for males, including reference group.

For NURSE in the non-coronal environment the results are very similar (Figure 19). The MC males have a fair spread along F2, ranging from just over 1.2 to about 0.7, with a slight collapse of the stepladder patterning found in NURSE Coronal. The WC speakers are still showing more cohesion, with a smaller spread along F2 (just below 1.2 to just below 0.9), but with more F1 variation. A gender difference is evident here, with the males being less cohesive than the females.

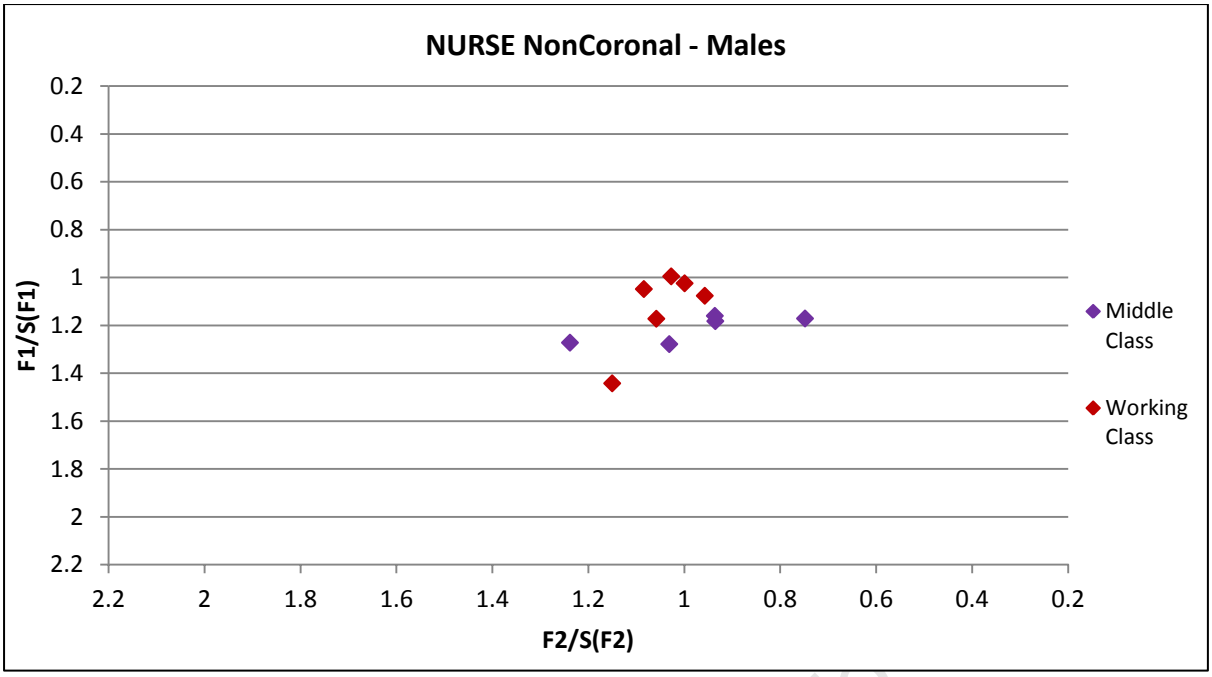


Figure 19: Normalised Mean Values for NURSE Non-Coronal for males per social class.

The statistical tests show four different realisations for NURSE Non-Coronal (vertical lines):

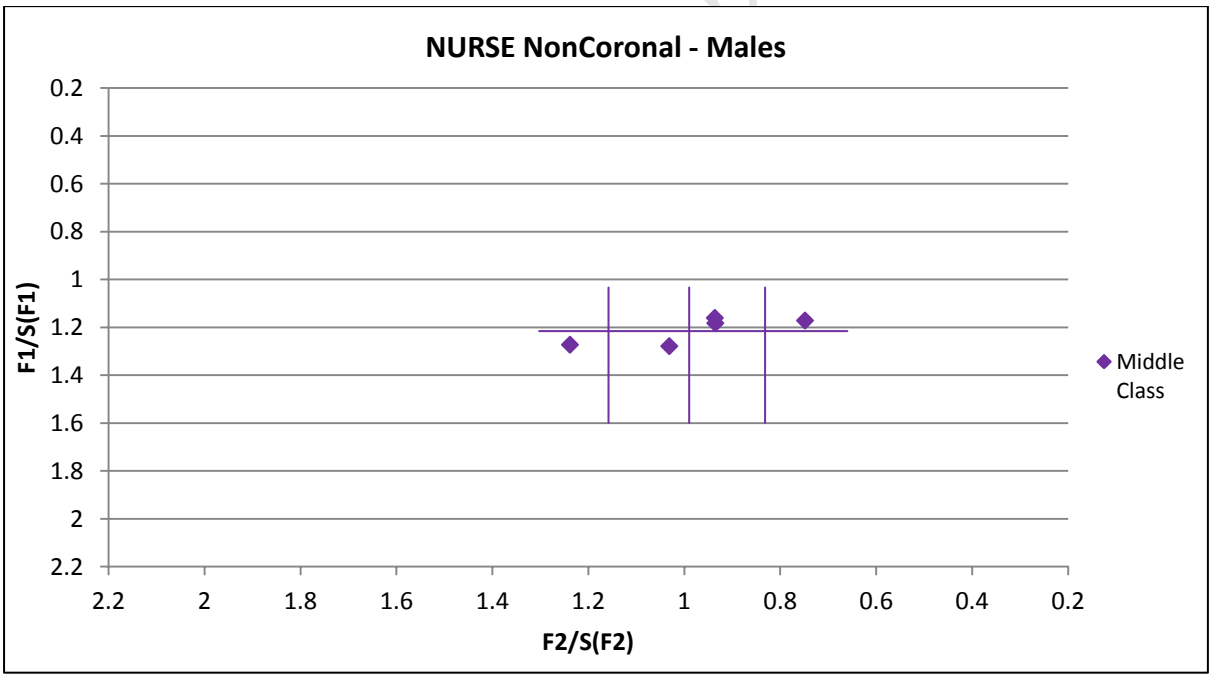


Figure 20: Normalised Mean Values for NURSE Non-Coronal for MC males, comparing fronting and height.

The first realisation in Figure 20 is significantly fronter than the second (p=7.58E-06), which is fronter than the third set (p=0.0013), which in turn is fronter than the realisation furthest back (p=0.0035). There are only two speakers who overlap for frontness, with the rest of the MC speakers showing no uniformity at all, which shows that the coronal and the non-

coronal environments are treated differently by MC males. The MC speakers do not have a norm for frontness in this environment, which is evident in the variation among them. There is less variation in terms of height, with only two different height realisations emerging (horizontal line). The group above the line is producing NURSE significantly higher than those below the line (p=3.27492E-09). There is clearly more cohesion within MC for height than there is for frontness, although the variation between them suggests that there is no common norm as of yet.

The WC group, show a larger degree of in-group cohesion (as was the case in the coronal environment). There are no significant differences in frontness, except for the two speakers with the arrows (p=0.0081). Looking at Figure 21, this result does not make much visual sense, but the graph showing all the tokens of NURSE Non-Coronal of the speakers concerned (Appendix) will clarify, since the means do not always visually represent the statistical differences.

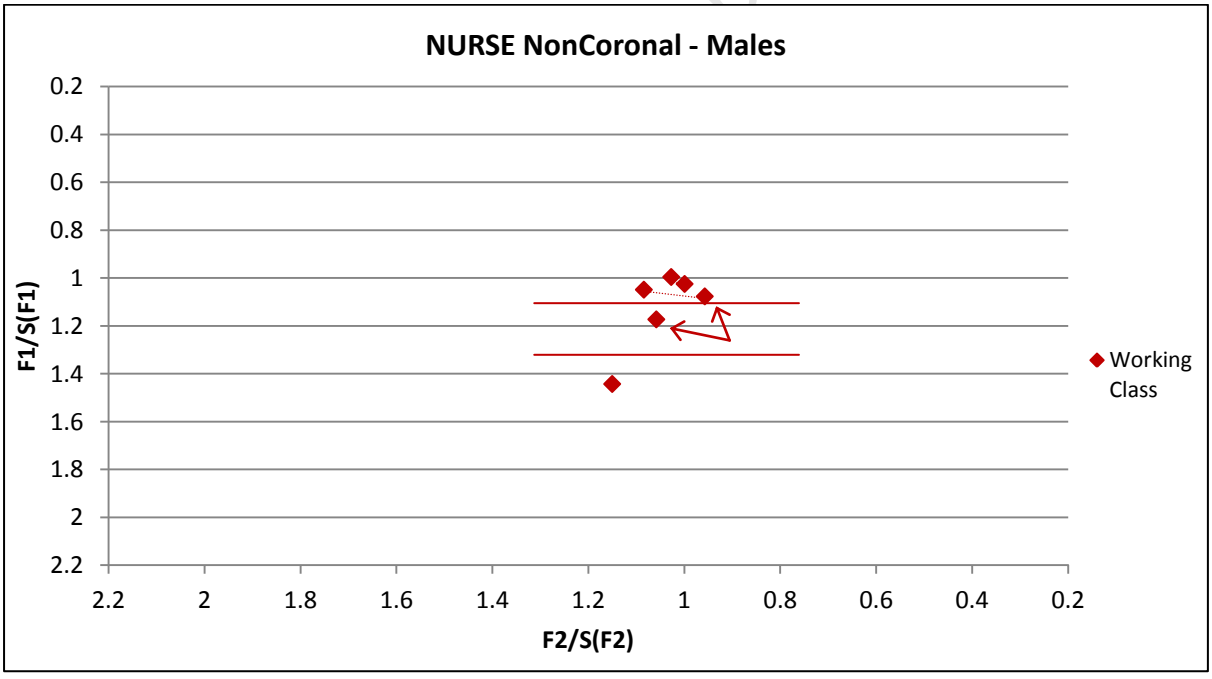


Figure 21: Normalised Mean Values for NURSE non-coronal for WC males, comparing fronting and height.

Since there is only one significant difference in frontness between these speakers, and since the speakers who are different to each other are similar to the rest of the WC speakers, it is clear that there is a large degree of overlap in terms of F2, which in turn indicates that there is indeed a general norm for frontness. This group shows less cohesion for height, with the

statistic results showing four significantly different height realisations. The four speakers above the horizontal line are the speakers with the highest realisation. Three of these speakers overlap for height, with one speaker lower than all (p=0.0008) save one (joined by dotted line, p=0.1514). There is one speaker who lower or 'mid' realisations than the 'high' group and another speakers who is significantly lower than all the other WC speakers (hence an outlier). This variation in vowel height shows that there is no set norm for height for WC males in this environment, even though there is a clear norm for frontness (less so for females).

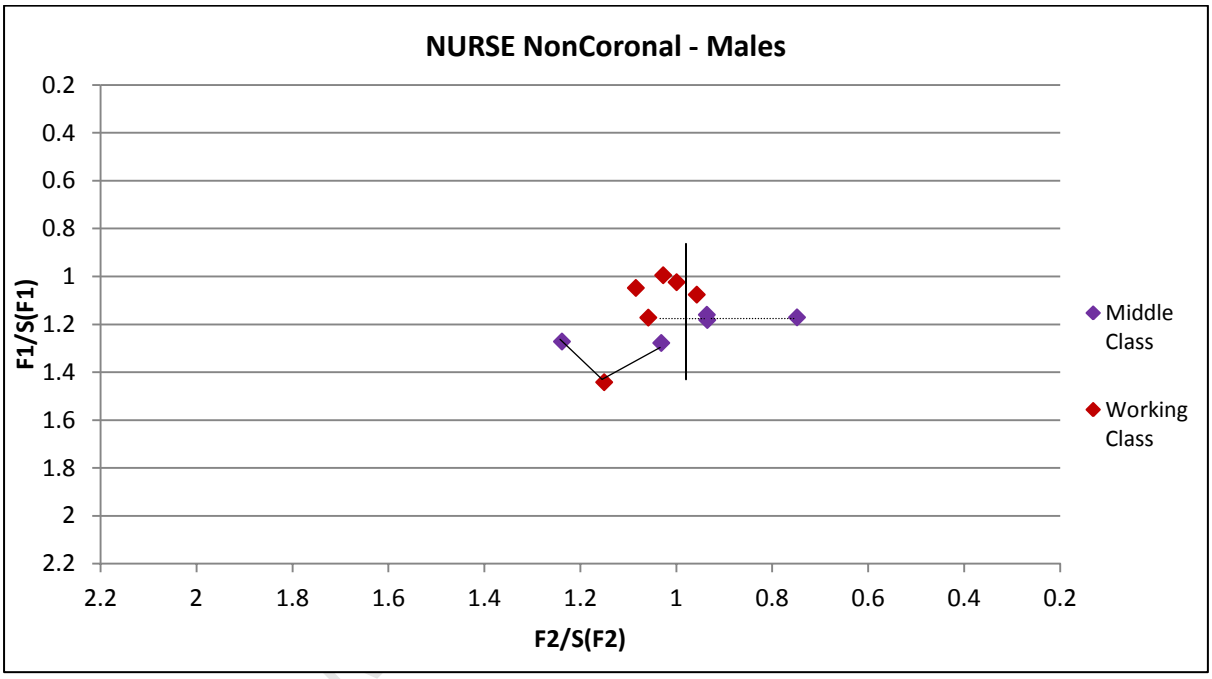


Figure 22: Normalised Mean Values for NURSE Non-Coronal for males.

The comparison between MC and WC speakers in Figure 22 yields interesting and varied results. In terms of fronting, some of the MC and WC speakers overlap. The speakers on the left side of and closest to the vertical line are all similar in their level of frontness (p=0.2895). One WC speaker mean overlaps (as shown by the solid lines joining them) with two MC speaker means (p=0.4732 and p=0.2115), showing a similarity in the level of frontness, although the MC speakers are significantly different from one another. On the right side of and closest to the line, two MC speakers overlap with a WC speaker (p=0.2972).

The majority of the WC speakers realise NURSE higher than the MC speakers. The only overlap between MC and WC is where one WC speaker shows no significant difference (p=0.4464) to two MC realisations (joined by dotted lines). The WC speaker overlapping with MC is also significantly lower than WC speakers (except of course the outlier). The remaining MC speakers do not overlap with any WC speakers for height.

As with the coronal environment, there is a large degree of overlap between MC and WC speakers. Once again, the only complete difference is that the MC males show far less intra-group cohesion, and produce almost individual realisations, especially for frontness. The WC group on the other hand show a large degree of intra-group cohesion, with a clear norm for frontness emerging from the data. For height, however, the two groups are uniform in that there are only two separate variations. Height is the only area where there is possible social class differentiation, with a group of MC realisations not overlapping with any WC realisations. The high degree of variation for both groups indicates, as it did for the coronal environment, that these speakers are indeed in a period of transition (although to a lesser degree for the WC speakers, who show less in-group variation). In other words, the WC speakers retain older SAIE norms of mid [ɛ̝](Mesthrie 2011, personal communication) rather than lower variants thereof. It furthermore seems that there are no significant differences between NURSE in the coronal and non-coronal environments for males.

The male speakers in the White reference group (Figure 23) once again show differences between them, differing for both frontness (p=0.0051) and height (p=1.07807E-10). There are no overlaps between the MC and their reference group for frontness, the only exception being one W speaker overlapping with one MC speaker (p=0.1006) in terms of frontness (joined by the line).

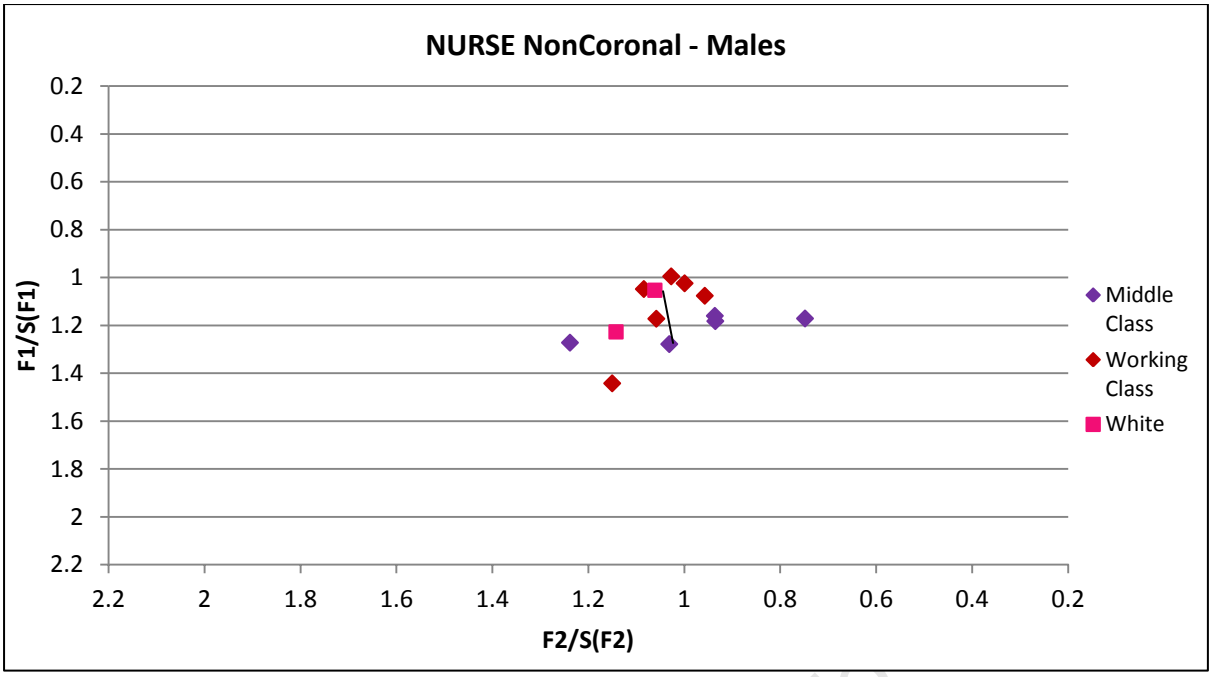


Figure 23: Normalised Mean Values for NURSE Non-Coronal for males, including reference group.

Interestingly, this particular MC speaker also overlaps with the majority of the WC speakers for frontness. In terms of height, both White speakers are significantly higher or lower than the MC realisations.[39]

3.4. Males vs Females

The next section provides a comparison between the males and the females, and also explores the differences between the environments in how NURSE is pronounced. The comparison is, for reasons of space, not exceptionally in-depth, providing a general overview more than anything else. Each social group is discussed separately. Statistical tests used the individual token values of each speaker, and the gender groups were tested against each other without intra-group divisions[40].

WC males and females show very different patterns when compared to one another (Figure 24), with each gender having different general norms for NURSE in the coronal environment. There are no significant differences between the male and female speakers according to

[39] p=4.9604E-15 for the highest White speaker vs the highest MC speakers. p=0.0158 for the lower White speaker vs the lower MC speakers.

[40] This choice is based on the fact that there are not enough speakers to use the mean values of each vowel per speaker (t-tests require at least 30 tokens). Furthermore, when using the means, as mentioned before, the spread of the data which is also significant is lost.

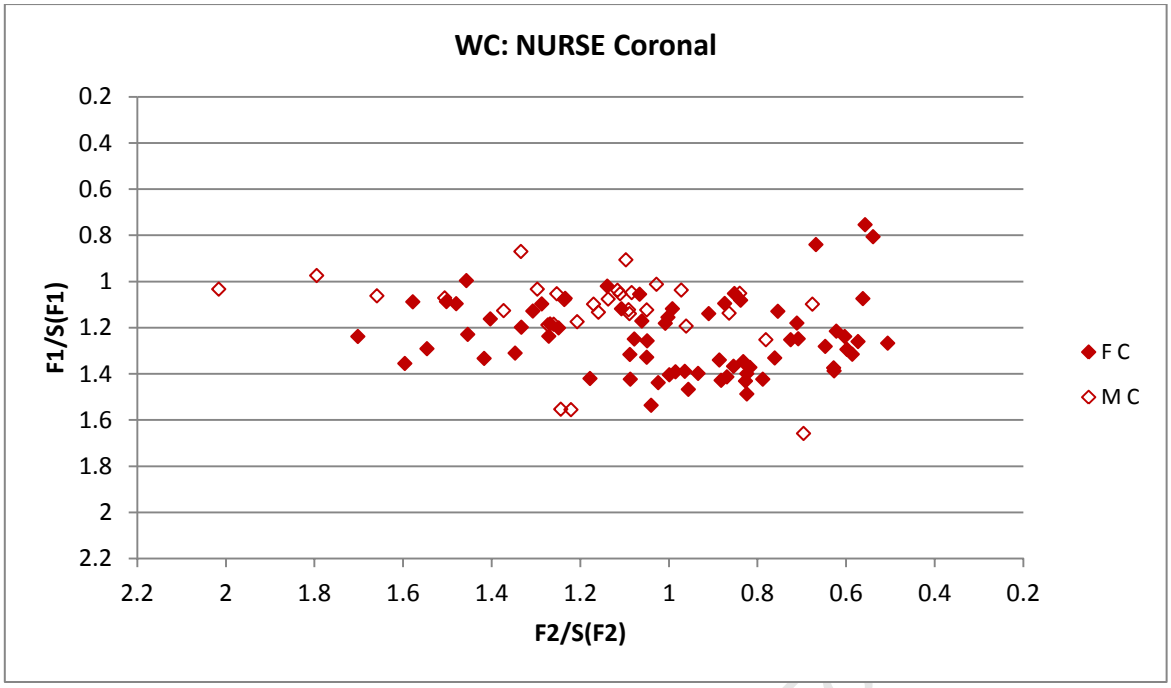


Figure 24: Normalised Individual Values for NURSE Coronal for WC speakers, separated by gender.

frontness (p=0.1117), but the males have significantly higher realisations than the females (p=0.0477). The non-coronal environment sees a slightly different result (Figure 25), with gender differences for frontness and height. Females have fronter realisations than males (p=0.0164), and males have significantly higher realisations than females (p=3.71537E-19).

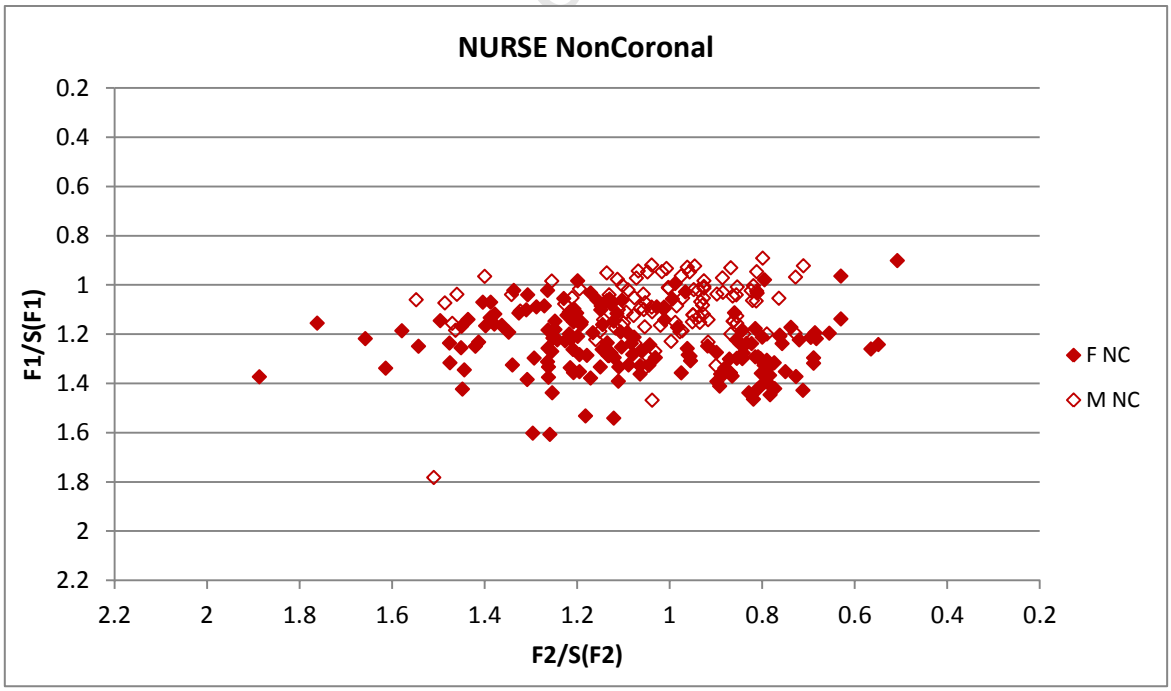


Figure 25: Normalised Individual Values for NURSE Non-Coronal for WC speakers, separated by gender.

The female group in general differentiates between coronal and non-coronal for frontness, having fronter realisations in the non-coronal environment than in the coronal environment (p=0.0220). The males on the other hand show no significant differences in frontness between coronal and non-coronal (p=0.1836). The female group does not differentiate between the environments for height (p=0.4935), whereas the males have lower realisations in the coronal environment than in the non-coronal environment (p=0.0017). The WC males are holding on to an older SAIE norm for NURSE with regards to height, with the females being slightly more attracted to a new prestige variant. This shows that gender has a stronger effect on NURSE than class does.

Within the WC group there is a large amount of gender differences, which is in keeping with sociolinguistic expectations (e.g. Chambers 2009, pp136-158). There are no overlaps for fronting for non-coronal NURSE, with the females always showing fronter realisations. In terms of height, males produce the higher realisations in both environments. Each gender also treats the environments differently, either fronting more in one than the other (females), or having higher realisations for one than the other (males). A high degree of variation seems characteristic when the genders are compared to one another, even though they display some cohesion individually. It appears then that the WC group is in a period of transition for NURSE. Since there are clear differences between the WC males and females, and since mid-central NURSE is the older norm for SAIE (as outlined in literature on the topic), lowering and fronting of NURSE by WC speakers is plausible.

For the MC speakers in the coronal environment (Figure 26), there are also gender differences in terms of frontness and height. Unexpectedly, the males have both significantly fronter (p=0.0181) and significantly lower (p=0.0002) realisations than the females.

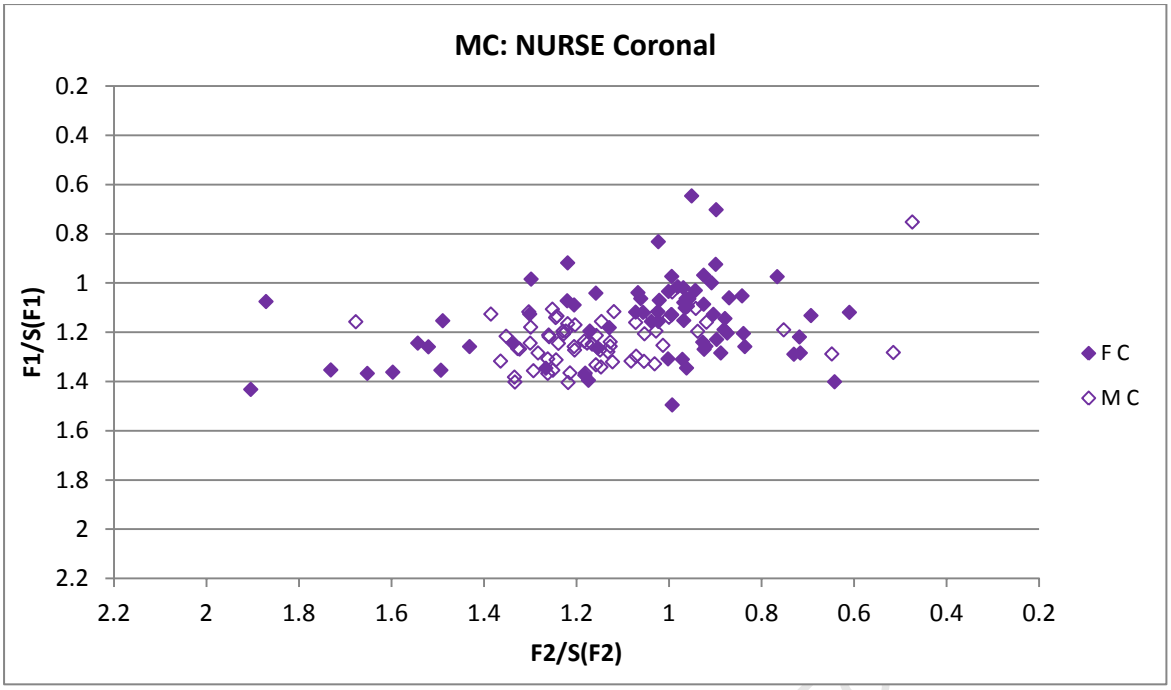


Figure 26: Normalised Individual Values for NURSE Coronal for MC speakers, separated by gender.

In the non-coronal environment (Figure 27) the results are slightly different. The males are still realising NURSE significantly lower than the females (p=0.0013), but for this environment there are no significant differences for frontness (p=0.3252). The males and females in the MC treat the environments differently, differentiating in terms of height and frontness in different ways. Both the female and male groups show no significant differences in height between coronal and non-coronal (p=0.0960 and p=0.3539). However, the males show significant differences in frontness where the female group does not. The males have fronter realisations for coronal than for non-coronal (p=1.05E-06).

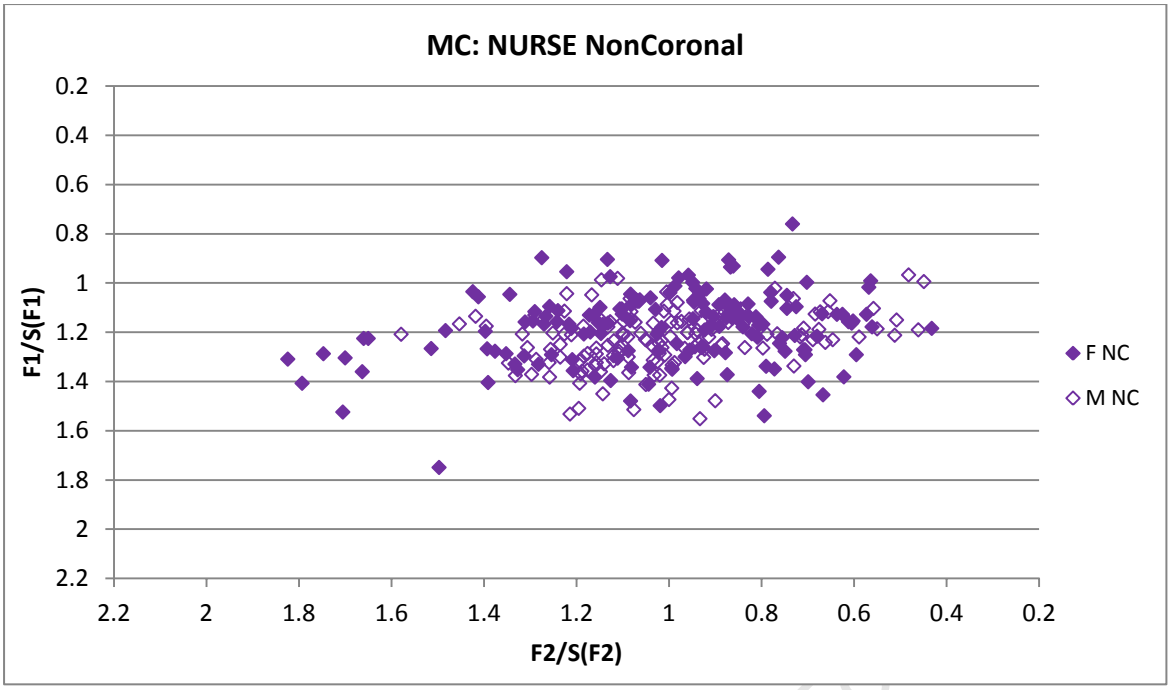


Figure 27: Normalised Individual Values for NURSE Non-Coronal for MC speakers, separated by gender.

For reasons of comparison, the White control group's gender results are also given. Figure 28 shows a clear difference between the males and the females. As is evident, the males have significantly lower realisations for NURSE coronal than the females (p=1.10056E-07). There are no significant differences in fronting (p=0.2302), although it is clear from the graph that the females have a much larger F2 spread, with the males mostly bunched in the middle.

In the non-coronal environment (Figure 29), the results are exactly the same. There are no significant differences in frontness (p=0.06), although the females once again have a larger range of F2. The males once again produce significantly lower realisations than the females (p=5.84929E-15). The males and females in this group mostly treat the environments as the same, with neither the females (p=0.2109) nor the males (p=0.2536) showing any significant differences in height between coronal and non-coronal. The males, however, have significantly fronter realisations for the coronal environment (p=0.0376), where the females make no distinction (p=0.4591).

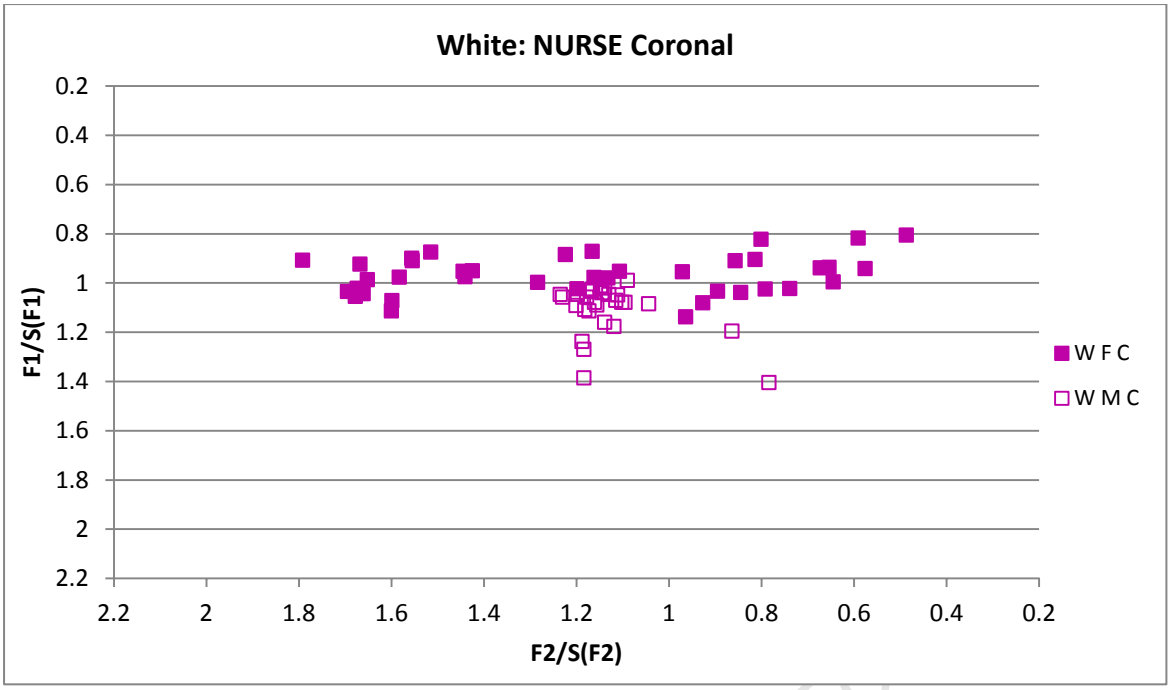


Figure 28: Normalised Individual Values for NURSE Coronal for the White reference group, separated by gender.

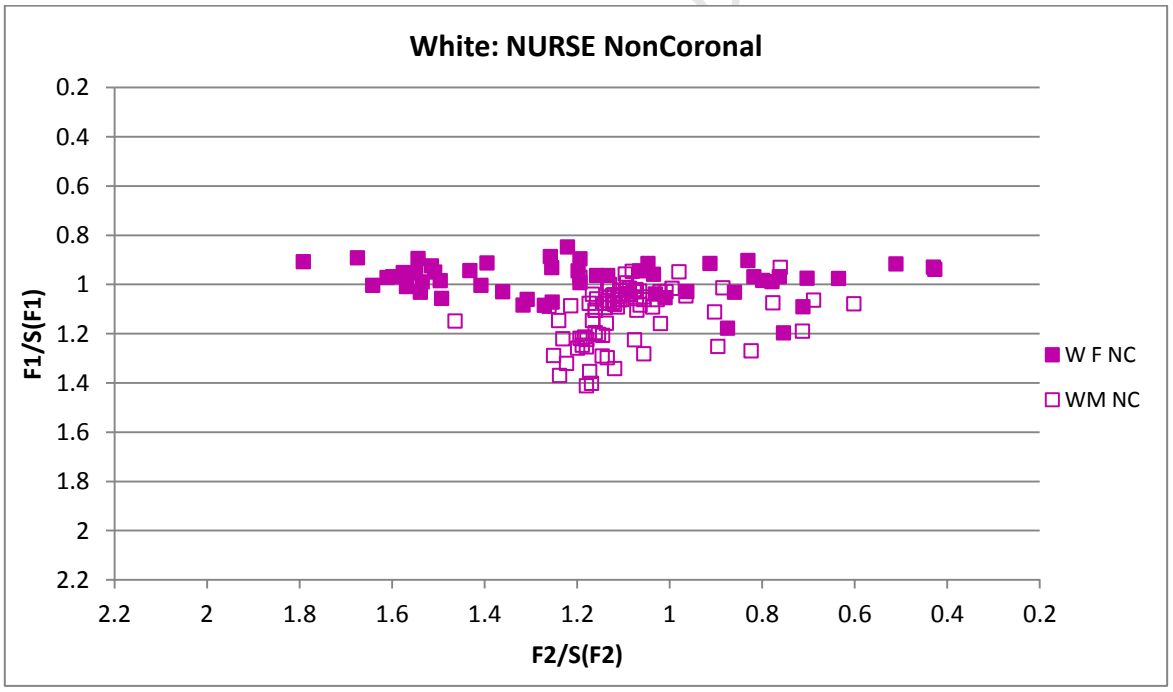


Figure 29: Normalised Individual Values for NURSE Non-Coronal for the White reference group, separated by gender.

Bekker (2009, 393) noticed fronting of this vowel in his study of White female speakers, as noted earlier, and although there is no statistical evidence of this in my data as of yet, there is a large spread along the F2 plane for the females, with a number of very front realisations

which clearly indicates some change is taking place. Lass (1995, 98) noted that speakers of SAE (except the conservative speakers) have front-central [ɔ̈] or something lower for NURSE, which is evident in the realisations of the males.

3.5. Conclusion

The results for NURSE in the two environments are quite clear, indicating that South African Indian English is a dialect which is very much in a transition period. The middle class group displays a large degree of internal variation, with speakers in this group often behaving individualistically, showing no in-group cohesion or norm as far as height and frontness for NURSE is concerned. The working class speakers also differ internally, but to a lesser degree than the middle class speakers, showing far more cohesion and norms as a group for both F1 and F2.

The middle class groups show a larger degree of gender variation (although there are similarities too), indicating that even with social class, no norms have been decided upon. The gender variation within the working class, however, shows that gender is more important than social class, with the males retaining the older variant, while the females are attracted by a new prestige variant.

SAIE seems to be a dialect that is not showing a large degree of social class differentiation. The middle class speakers overlap with the working class speakers more often than not, with great variation (diffusion) being the characteristic indicative of middle class speech rather than concrete height or frontness differences. The working class speakers on the other hand seem to be characterised by a large degree of in-group cohesion, where gender plays a bigger role than class. It is clear that the dialect is in a transition period, and it seems plausible that the next generation of South African Indian English speakers will not have the same patterns of variation. Futhermore, there is some evidence, largely based on gender, that separating the data for nurse into coronal and non-coronal is an important factor, since there are fronting and height differences based on environment between males and females.

CHAPTER 4: THE THOUGHT VOWEL (LONG /□˞/)

4.1. Introduction

Gimson (1989, 117) described THOUGHT in Received Pronunciation (RP) as a back vowel varying between half-open and half-close. Mesthrie (2004, 957) described THOUGHT in SAIE as a back vowel that is usually half open and weakly rounded. Furthermore, some speakers raise this vowel to [ɔ˞] in formal styles under the influence of general [SAE]. "A less prestigious variant involves shortening to [□]", and after /w/ the vowel is usually realised as [ʌ˞], not [□˞], unlike general [SAE], RP and other varieties.

As with NURSE, THOUGHT was analysed and compared according to phonetic environment per social group, and per gender. As mentioned before, THOUGHT is a variable that has not been studied in much depth in SAIE, which resulted in little clarity as to which environments to separate the data into. Mesthrie's description of THOUGHT (outlined above) provided after /w/ as an environment. Similar to NURSE, after logging all the tokens, it became apparent by inspection that the following environments were discernable:

Group	Coronal	Non-Coronal	ORT[41]	After /w/	Word Initial	(J)	Total
WC Female	50	106	16	16	16	2	200
WC Male	43	61	17	19	8	6	154
MC Female	67	119	9	22	24	7	248
MC Male	38	138	47	17	13	3	256
W Female	14	40	4	8	11	0	77
W Male	22	68	16	9	13	2	130

Table 6: Number of normalised tokens for THOUGHT, per environment.

As Table 5 shows, THOUGHT is not a vowel that occurs in causal speech nearly as much as NURSE (and GOOSE). Where THOUGHT occurred after /j/ (in words like *your*), there are too few tokens to make solid claims as to vowel behaviour, as its numbers lie far below the required number for statistical purposes. Similarly, ORT[42], /w/ (in words like *walk*, *water*, *award*) and word initial (as in *ought*, *order*) have too few realisations for the t-tests to be accurate. Once again, the coronal and non-coronal environments produce the most tokens. Therefore, THOUGHT in SAIE is being discussed in terms of its behaviour after (a) coronals (as in *thought*, *taught*) and (b) non-coronals (as in *caught*, *bought*), the result being underpinned

[41] Since thought is traditionally shortened when followed by 'rt'.
[42] Word where THOUGHT is followed by '-rt' in word like *sport* and *short.*

statistically. After the discussion of these two environments, I will briefly discuss the behaviour of THOUGHT as is occurs after /w/, albeit impressionistically (since the t-tests will be unreliable). For short these environments will be termed the coronal, non-coronal and W environments respectively. Due to space constraints, the environments ORT and Word Initial have been excluded from the discussion since they do not show significant patterning, nor are there enough tokens to support adequate comparisons. The format of discussion will be the same as for NURSE: it deals first with the female group, then the males, followed by a gender comparison.

4.2. Results: Females

The results for THOUGHT are much less complex than for NURSE, and as a result the MC and WC groups will largely be discussed together: firstly in terms of frontness and secondly in terms of height. Where necessary, the groups will be split up to clarify the result. Once again, a brief reminder that the graphs are produced using speaker means, and as a result the graphs are not always visually suggestive of the statistical differences found. When appropriate, the appendix (Section 5.2.) contains graphs made with the individual vowel values which will clarify the results.

Figure 30 shows that MC speakers have two clearly defined norms for frontness. The first three speakers are much further forward than the second three speakers (p=5.13E-18). Although there is a significant difference (p=0.0316) in frontness between two MC speakers (joined by a purple line), they both do not differ from the third member of this 'front' group, and as such this difference is inconsequential. The speakers in the 'back' group do not show any differences in frontness. MC THOUGHT, in having these two realisations is showing much more cohesion than the data for NURSE. The WC speakers have a slightly more varied result, with two speakers (joined by a red line) not differing in terms of frontness for THOUGHT (p=0.1226). These two are, as is clear from Figure 30, significantly further back (p= 4.35502E-07) and further forward (p=5.23896E-10) than the remaining WC speakers.

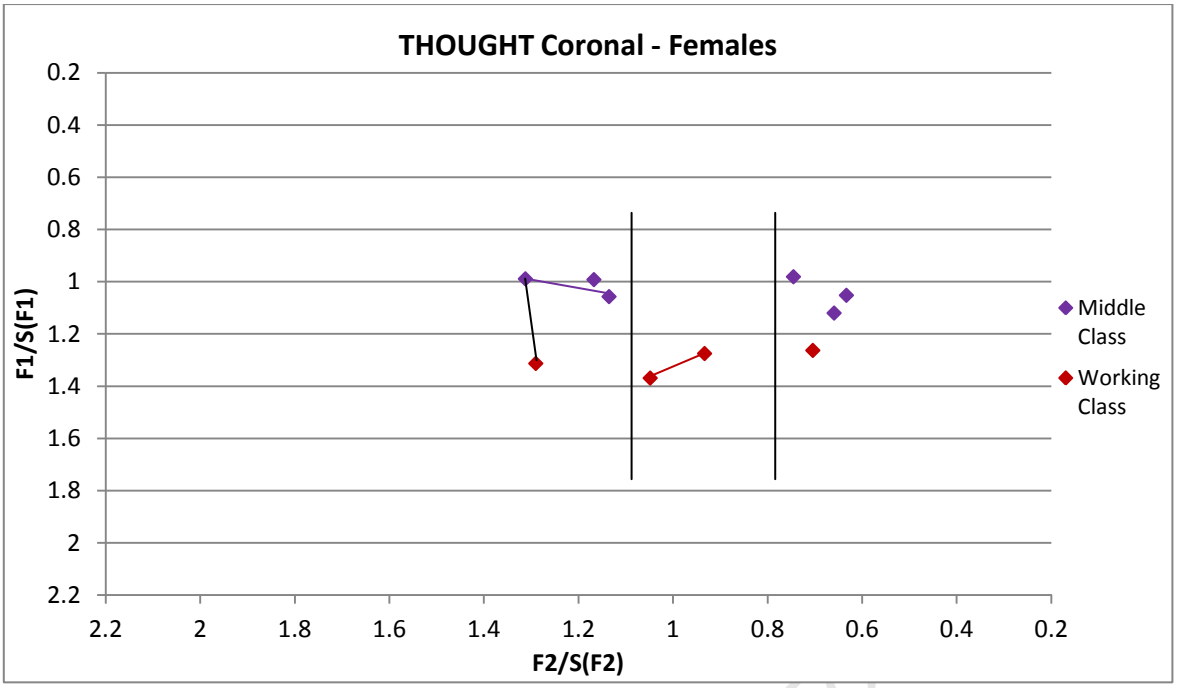


Figure 30: Normalised Mean Values for THOUGHT coronal for females per social class, showing levels of frontness.

When comparing the MC to the WC in terms of frontness, there is a fair amount of overlap and difference (difference indicated by vertical black lines). The MC speakers with the 'back' realisations for THOUGHT overlap with one WC speaker (p=0.2664) and one MC furthest forward has similar levels of fronting to one WC speaker (p=0.3913, connected with black line). Since the difference in frontness of this MC speaker compared to the other 'front' MC speakers is negligible, the WC speaker matching this level could also be said to match the 'front' MC in general. The WC speakers who match each other for frontness do not overlap with any MC speakers, either being significantly further back (p=0.0007) or further forward (p=4.78845E-11).

In terms of height (Figure 31), the MC speakers show strong cohesion, with only two height differences[43] (indicated by arrows). Besides these differences all the MC speakers overlap for height, which indicates that the differences between some speakers are not significant in terms of change or class bifurcation, but can rather be attributed to general and expected variation within speech communities. The WC speakers show the same result: two speakers differ (p=0.0303) in height (joined by red line), but otherwise they all overlap.

[43] For the 'front' speakers, p=0.0288; for the 'back' speakers, p=0.0106.

Height shows a clear class difference between the MC and the WC speakers (as indicated by horizontal line), with the MC speakers clearly realising THOUGHT as a higher vowel than the WC speakers. This result confirms the initial hypothesis that the MC speakers will have higher realisations than WC. The t-tests result supports this claim, with the MC and WC speakers closest to each other along F1 showing a significant difference (p=0.0055).

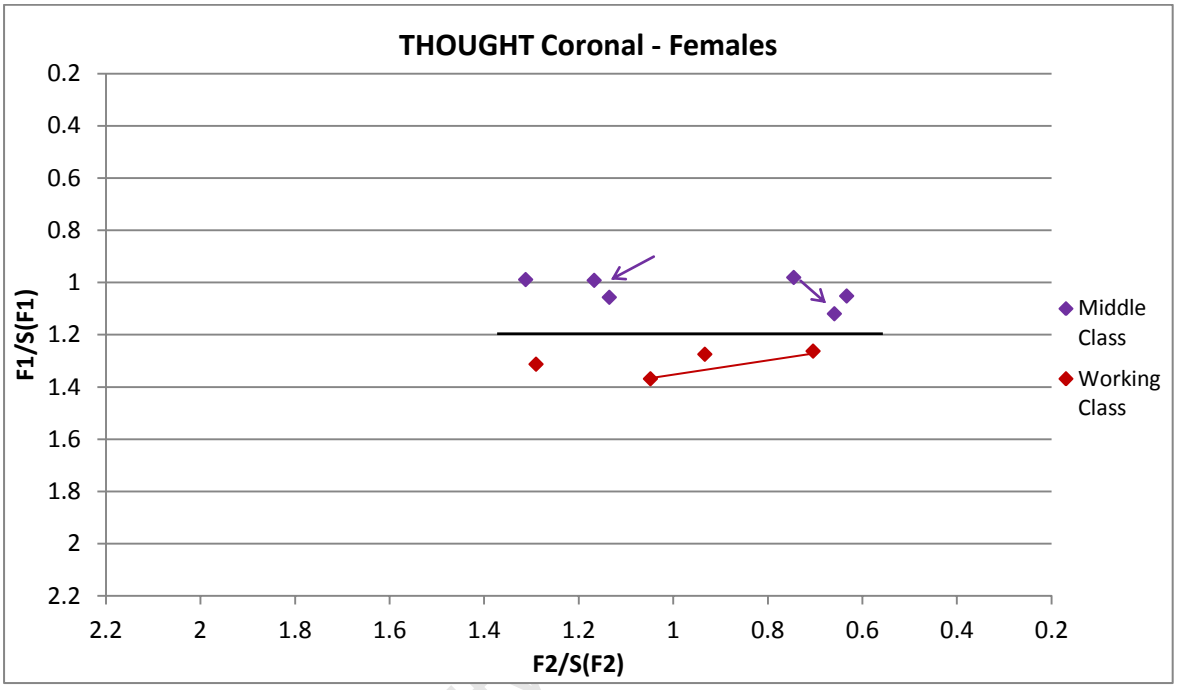


Figure 31: Normalised Mean Values for THOUGHT coronal for females per social class, showing height differences.

For THOUGHT in the coronal environment the clear differences between MC and WC shows class differentiation amongst the speakers, with the MC speakers consistently opting for higher realisations than WC. Mesthrie (2004, 957) noted a tendency to raise THOUGHT in formal styles. The MC speakers seem to be implementing this not only in formal style but also casual style (as casual as a sociolinguistic interview can be), indicating a likely change in progress in the direction of WSAE. There is some overlap between MC and WC for frontness, but the only two WC speakers who agree on frontness do not share their frontness features with MC.

Another difference between MC and WC is the level of cohesion: MC speakers, although they have two broad norms for frontness, are strongly cohesive in their realisations along F2. The WC, on the other hand, presents a more diffuse picture, with only half of the

speakers agreeing on level of frontness. These results are the exact opposite of what emerged for NURSE, where the MC speakers were consistently diffuse and the WC consistently focussed. It therefore appears that the WC speakers are in a period of transition for this vowel, and that the changes are occurring along F2[44]. Since the MC speakers are also showing two norms for frontness, change in progress is likely. With such a small and young sample (i.e. no older SAIE speakers for comparison) it is not possible to irrefutably claim the direction of this change, but since Mesthrie (2004, 957) described THOUGHT as a back vowel, the fronter realisations emerging from the data indicate a move frontward in the coronal environment. Both THOUGHT and GOOSE (see Chapter 5) are not fully back, and according to Mesthrie (personal communication, 2011), neither is BATH in his current acoustically based work.

The White speakers in the reference group (Figure 32) do not show any height differences (p=0.4677), although they are significantly further apart along the F2 plane (p=0.0389).

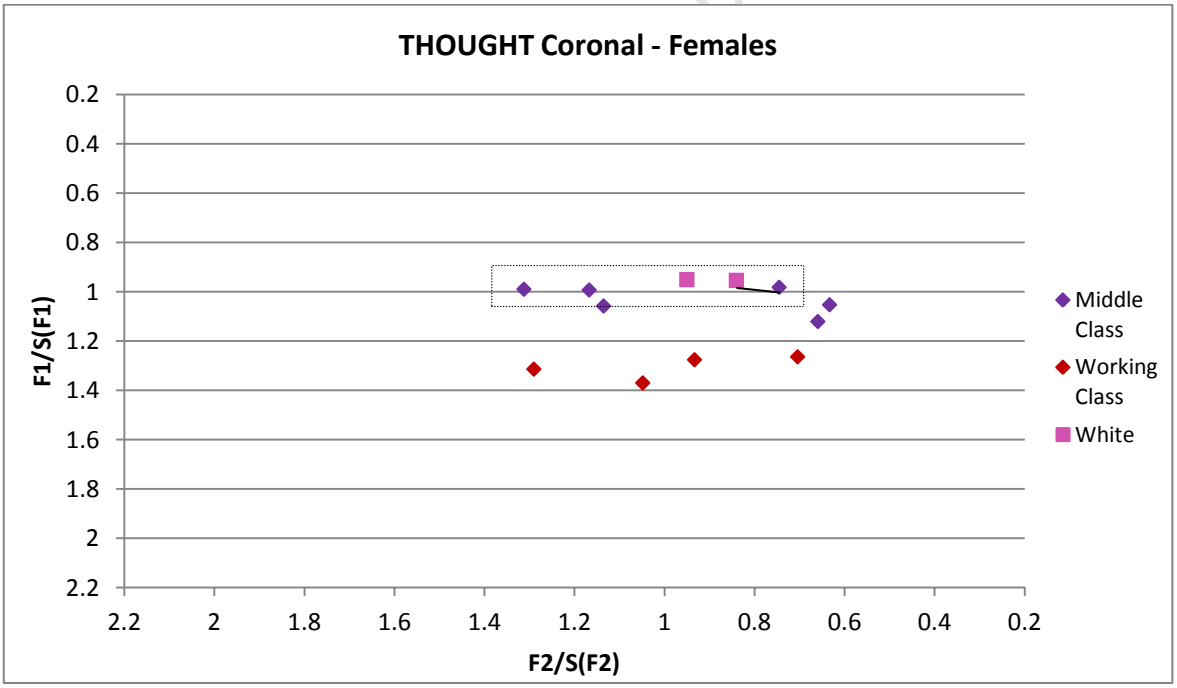


Figure 32: Normalised Mean Values for THOUGHT coronal for females per social class, including reference group.

In terms of height, some of the MC females overlap with the norm of the reference group (indicated by the rectangle). The other MC speakers are significantly lower[45]. One MC

[44] The same centralising tendency is observed for GOOSE. See section 5.2.
[45] p=4.6865E-05, p=0.0185 and p=0.0008

speaker overlaps with a White speaker for frontness (joined by the line), but otherwise there are no similarities between the MC and the reference group, with the reference group being in the middle of the two norm for MC frontness.

The results for THOUGHT Non-Coronal (Figure 33) are slightly less neat. The MC realisations are still forming two norms for frontness, with the fronter speakers being significantly fronter than the backer speakers (p=5.27443E-18).

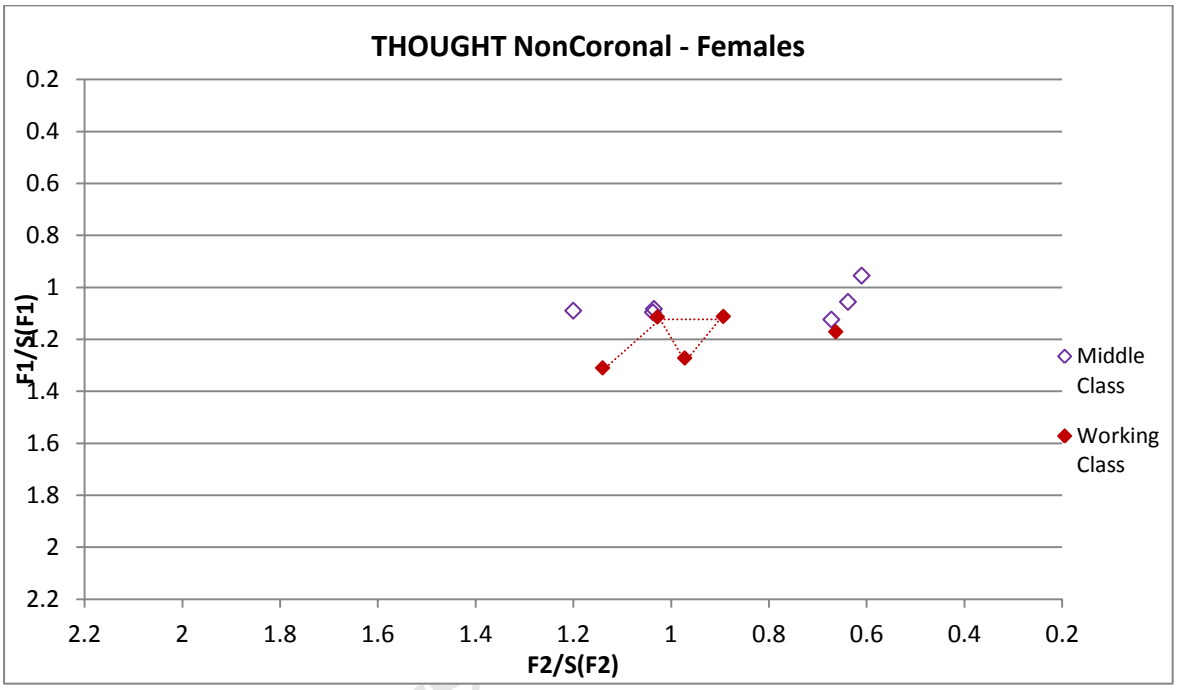


Figure 33: Normalised Mean Values for THOUGHT non-coronal for females per social class, showing differences and similarities in frontness[46].

The WC speakers have a different result for the non-coronal environment, showing much more overlap in terms of frontness. The speakers joined by a red dotted line are not significantly different from each other (although the speaker furthest forward only overlaps with one other speaker (p=0.1724)[47]. The WC speaker furthest back is realising THOUGHT significantly backer than the rest of the WC speakers, and as the only speaker doing so could be counted as an outlier. The majority of the WC speakers agree on a level of frontness, and in this they show greater cohesion in the non-coronal environment than in the coronal environment.

[46] MC marker changed to clarify the overlapping speakers.
[47] Individual Token graph in Appendix to clarify this result.

The differences, indicated by separating lines, between MC and WC speakers (Figure 34) along the F2 plane yield a similar pattern to the pattern for the coronal environment. The outlier of the WC group overlaps with the back realisations of MC (p=0.2735). The norm for WC in terms of fronting agrees with the fronter realisations of MC in part: two speakers overlap, and two do not. In this 'front' group, a MC and WC speaker differ for F2 (p=0.0319, arrow), but both these speakers also differ from their relevant 'class-mates'. However, this difference is discounted as a certain degree of in-group variation is expected. Two WC speakers do not overlap with MC in any way, being either further back (p=0.0001) or further forward (p=2.26487E-06) than the MC norms.

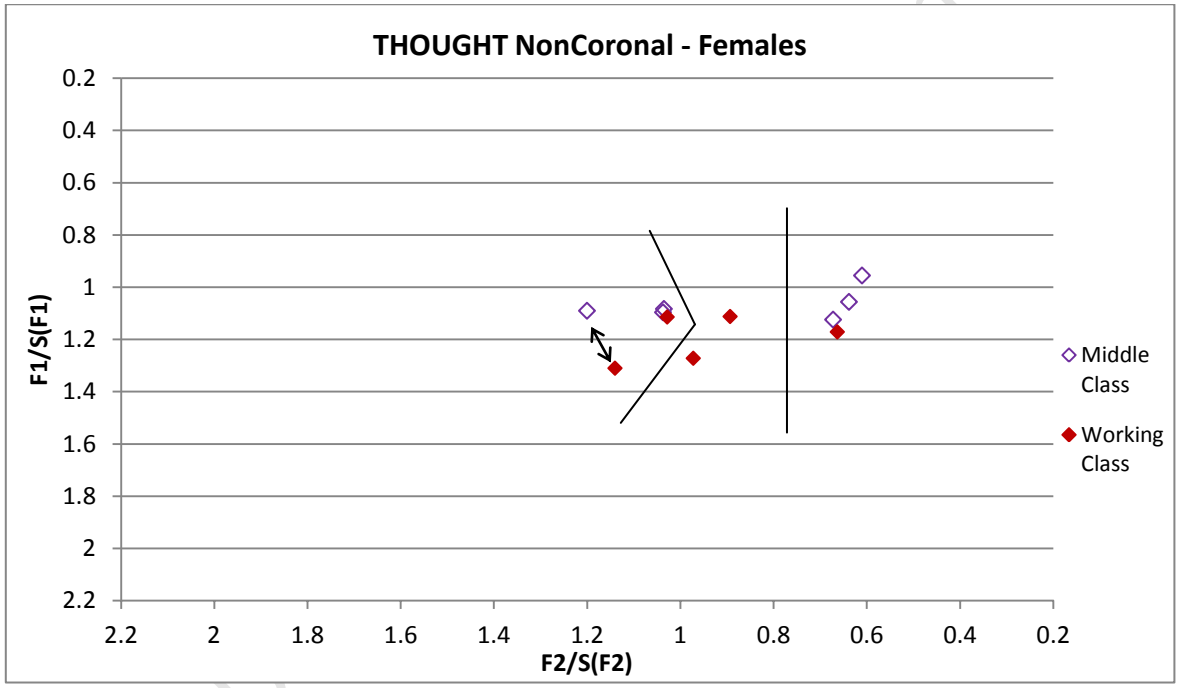


Figure 34: Normalised Mean Values for THOUGHT non-coronal for females per social class, showing differences in frontness.

The results for THOUGHT here are similar to what Mesthrie (2010b) found for GOOSE: some speakers have a back quality and others are fronting. This indicates that THOUGHT and GOOSE form a set of back vowels undergoing fronting.

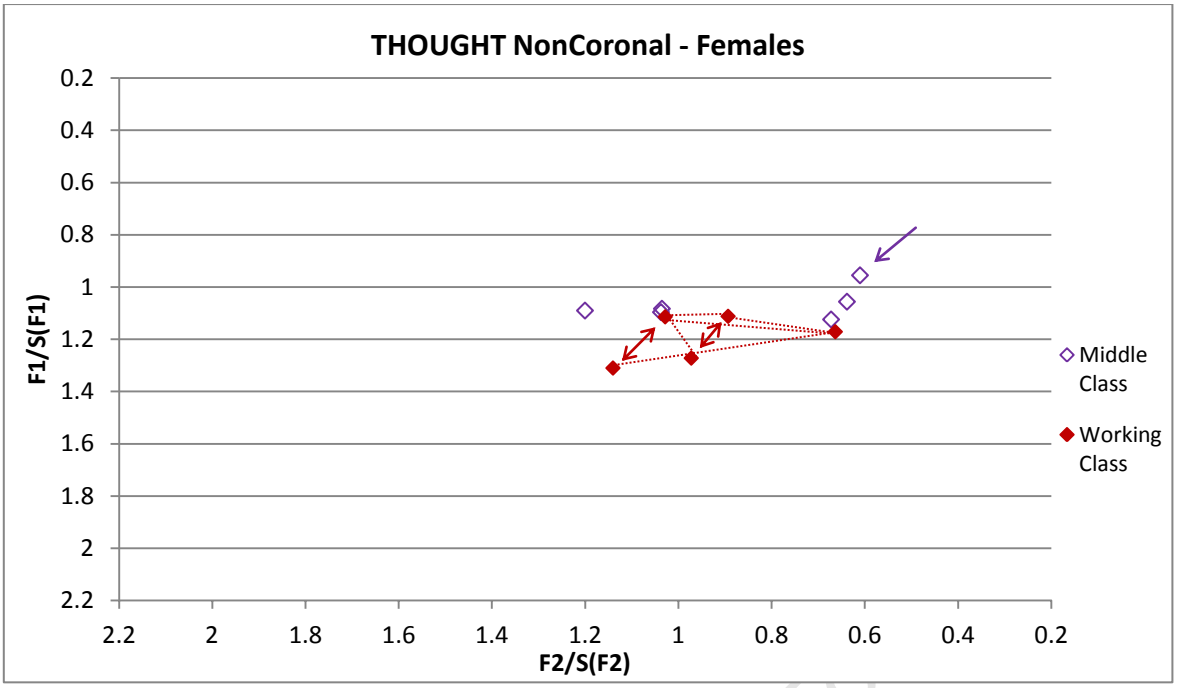


Figure 35: Normalised Mean Values for THOUGHT non-coronal for females per social class, showing differences and similarities in height.

The MC speakers again display strong cohesion as a group: they are all similar in height, except for one speaker who is significantly higher than all the other MC speakers (shown by purple arrow on Figure 35)[48]. There are two instances (indicated by red arrows) where WC speakers differ significantly in height (p=0.0370 and p=0.0328). Otherwise, the WC speakers show a degree of cohesion, with every speaker overlapping with at least one other (joined by the dotted lines).

There is a fair amount of overlap between the MC and WC speakers for height (Figure 36). The instances where they overlap are contained within circles, and every speaker not within a circle differs significantly to the others along F1. Two WC speakers are significantly lower than all MC realisations (p=1.85277E-11), and two MC realisations are significantly higher than all WC realisations (p=0.0329).

[48] p=0.0119 between the highest speaker and the one closest to her along F1.

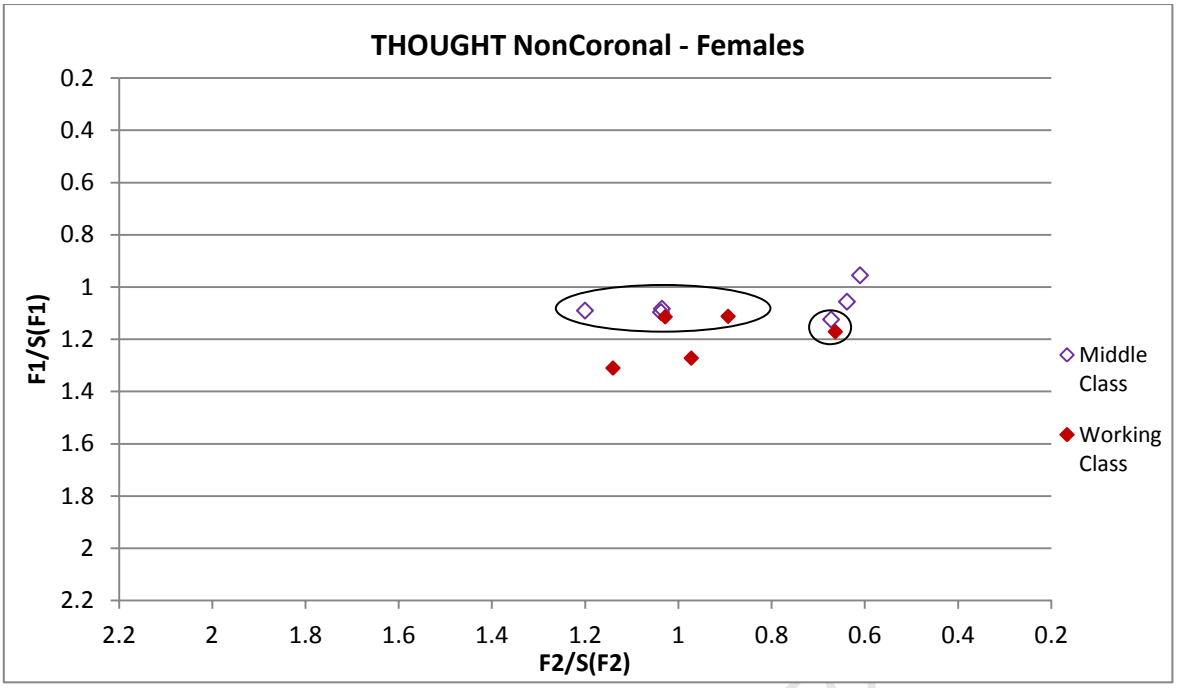


Figure 36: Normalised Mean Values for THOUGHT non-coronal for females per social class, showing similarities in height.

The situation for THOUGHT Non-Coronal is different to the situation for Coronal. Where in the coronal environment there was clear class bifurcation according to height, the MC and WC speakers largely overlap for height in the non-coronal environment, with only two MC speakers realising THOUGHT significantly higher than the WC speakers. While the MC speakers are still showing a clear norm for height, the WC speakers are varied in their realisations, with two speakers producing significantly lower realisations than the others. This height variation indicates that the vowel is in a transition period, with speakers still negotiating norms along both F1 and F2. It furthermore shows a difference between coronal and non-coronal THOUGHT.

In terms of frontness, the two social groups overlap in the same way as in the coronal environment, with two WC speakers in the middle of the fronter and backer realisations, being significantly different to both. The WC speakers are furthermore displaying more cohesion in terms of frontness, indicating that fronting of THOUGHT is currently more prevalent in the coronal environment.

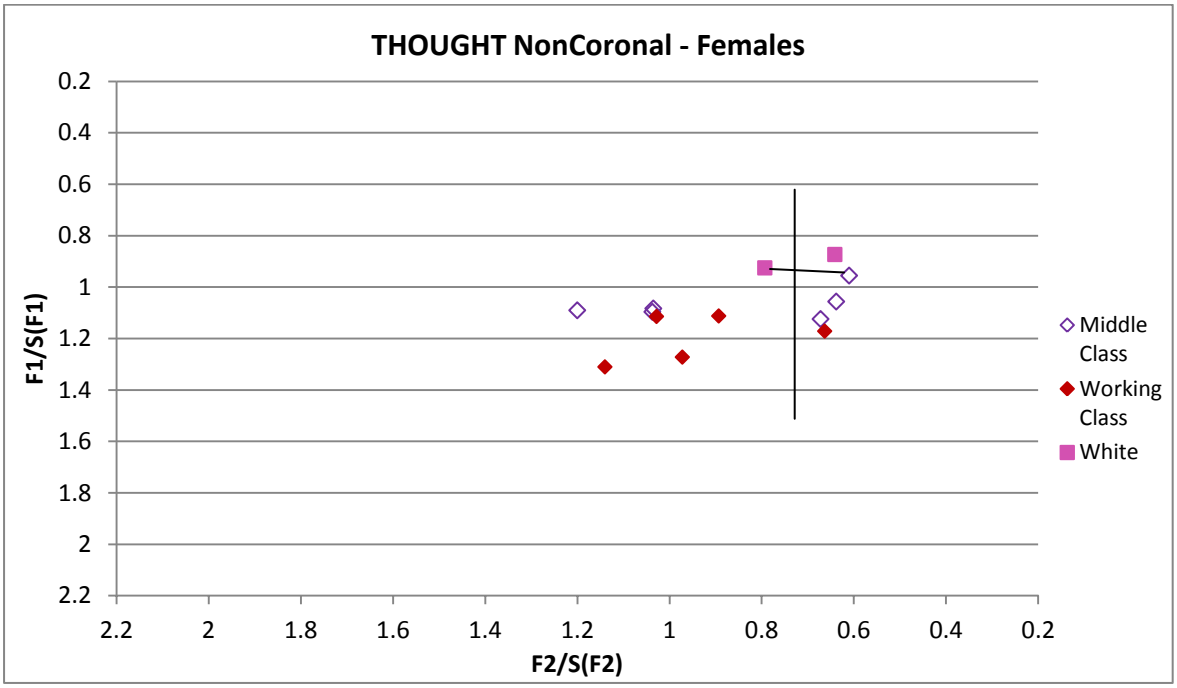


Figure 37: Normalised Mean Values for THOUGHT non-coronal for females per social class, including reference group.

Figure 37 includes the reference group's realisation means for THOUGHT in the non-coronal environment. One again the White speakers do not differ in terms of height (p=0.1006) but in terms of frontness (p=0.0004). In general, the reference group have higher realisations than MC, with one exception (speakers joined by a line) where a MC has similar height values (p=0.208). In terms of frontness, the MC speakers with the 'back' realisations overlap with one of the reference group speakers[49]. The reference group speaker with the fronter realisations is significantly further forward than the 'back' MC realisations (p=8.42257E-05), and further back than the 'front' MC realisations (p=5.21399E-06). Interestingly, and slightly aside, the reference group is fronting GOOSE (see Mesthrie 2010b as well as Chapter 5 of this work), but not THOUGHT. It would be interesting to see how BATH compares.

[49] p=0.1572, p=0.2579 and p=0.4687.

Words like *war*, *ward*, *water*, *wash* and *warm* deserve special consideration in SAIE. These belong to the THOUGHT set in RP and general SAE (Gimson 1989, 117). The <a> spelling after /w/ in fact preserves an older pronunciation which was [ɑː]. Rounding after /w/ took place some time between 1500 and 1800, reaching its conclusion around 1800 (Strang 1970, 115). There is in fact a reasonable case from a phonological point of view of considering /ɑː/ to be the underlying from with a special rule of rounding after /w/ affecting many dialects of English: RP, WSAE etc, but not varieties of English in Canada and parts of the US like New York. The rule of rounding did not affect Indian English and its later South African offshoot SAIE (Mesthrie 2011, personal communication).

This poses a problem for the current analysis. Should one take this subset to belong to THOUGHT which it clearly does for WSAE (as is evident in Figure 38) or to BATH as it appears to do for many SAIE speakers? Wells (1972) does not give any examples with /w/ either in the THOUGHT or BATH set of examples. Mesthrie (2004, 957) notes in his characterisation of SAIE vowels (quoted in Section 4.1, that after /w/ the vowel is usually [ɑ̝], not [□̝], unlike general SAE and RP (inter alia). This appears to place such words such as *water* and *warm* in the BATH set. The discussion is given under THOUGHT, however, showing the intermediate nature of the subset. In addition to belonging both to BATH and THOUGHT sets, middle class SAIE speakers (as I show below) treat these 'wa-' words as part of the THOUGHT set, and working class speakers treat it like the BATH set. In fact it is a shibboleth of prescriptivism or middle class values to correct people who say 'water' with a [ɑː] to 'water' with an [□ː]. However other words of the subset are seldom overtly corrected.

For the purposes of this analysis, I will briefly give the acoustic results for the subset by class and gender, and treat it like a subset of THOUGHT, since at least some SAIE speakers do likewise.

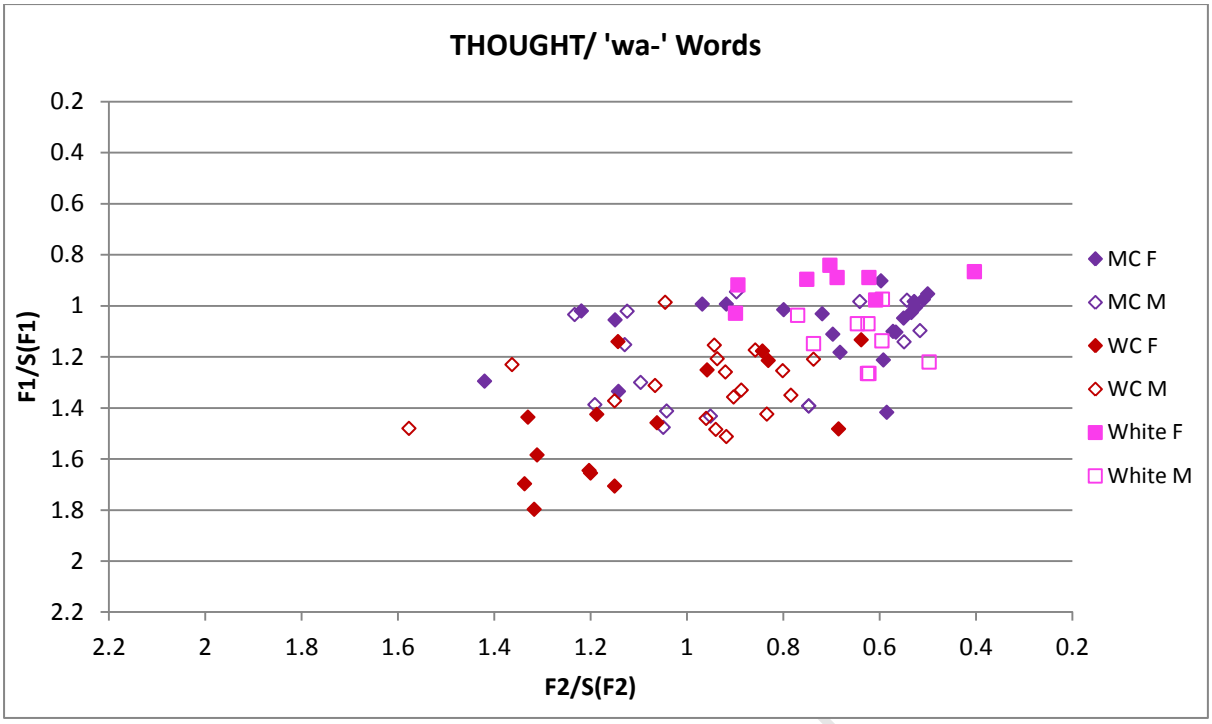


Figure 38: Normalised Individual Vowel Values for all groups, including the reference group, separated by gender.

From the results in Figure 38 t is clear that there are differences in the way that speakers classify 'wa-' words, as mentioned above. There is a large spread along F1, with realisations ranging from just over 0.8 to 1.8. The reference group clearly classify 'wa-' words as belonging to the THOUGHT set, with high realisations. The MC speakers overlap with the reference group to a large extent although there are speakers who produce this vowel further down than the reference group. For the majority of the WC speakers, then, these words are classified as belonging to the THOUGHT set as well (as mentioned earlier).

The WC speakers show by far the largest range in realisations along F1. In general they overlap with the MC speakers for height, but a significant number of them are realising the vowel in these words much lower. It seems then that the WC speakers are split in their realisations. As mentioned before, the WC speakers treat 'wa-' words as belonging to the BATH set. Since there is a fair amount of overlap between the MC and WC realisations, it and the WC group are raising their BATH vowels after /w/.

4.3. Results: Males

The results for males in the MC group are very different to MC females in that they show far less cohesion and patterning. In the coronal environment (Figure 39), most of the MC realise THOUGHT Coronal with the same level of frontness (those within the circle), with one speaker significantly further back than two of these speakers (p=0.0381 and p=2.30817E-05). The speakers connected with the purple line are not significantly different along F2 (p=0.2253), which means that all MC speakers overlap with each other in some way with regards to frontness. Regarding height, the MC speakers do not show cohesion, being significantly different from each other[50].

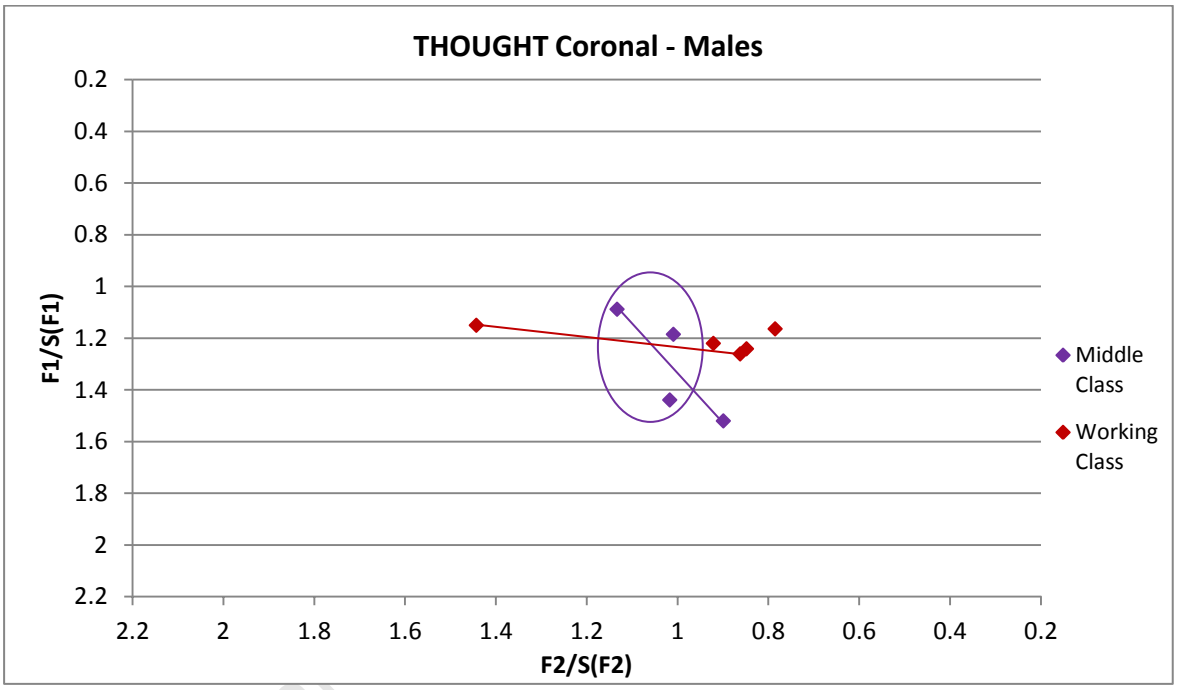


Figure 39: Normalised Mean Values for THOUGHT coronal for males per social class, showing differences in frontness.

The WC speakers are all significantly similar to one another in terms of frontness, although there is one speaker who has a very front realisation. Since he is the only speaker who is this far forward, and since he does not overlap with any other speakers, he is considered an outlier for frontness. The WC speakers also agree for height with only one significant difference (p=0.0101) between two speakers (joined by the red line).

[50] T-test results available in the Appendix, section 4.3.

There is considerable overlap between MC and WC speakers for THOUGHT frontness (Figure 40). All the speakers connected with dotted lines show significant similarities for frontness. Although there is no overlap between these two triangles (in terms of WC vs MC) it is clear that the MC and WC speakers mostly overlap. The outlier for WC frontness is an outlier here too in that he is significantly different to every other male speaker. There is only one other instance where a WC speaker is significantly further back than all the MC speakers, but in general the WC realisations overlap with those of the MC.

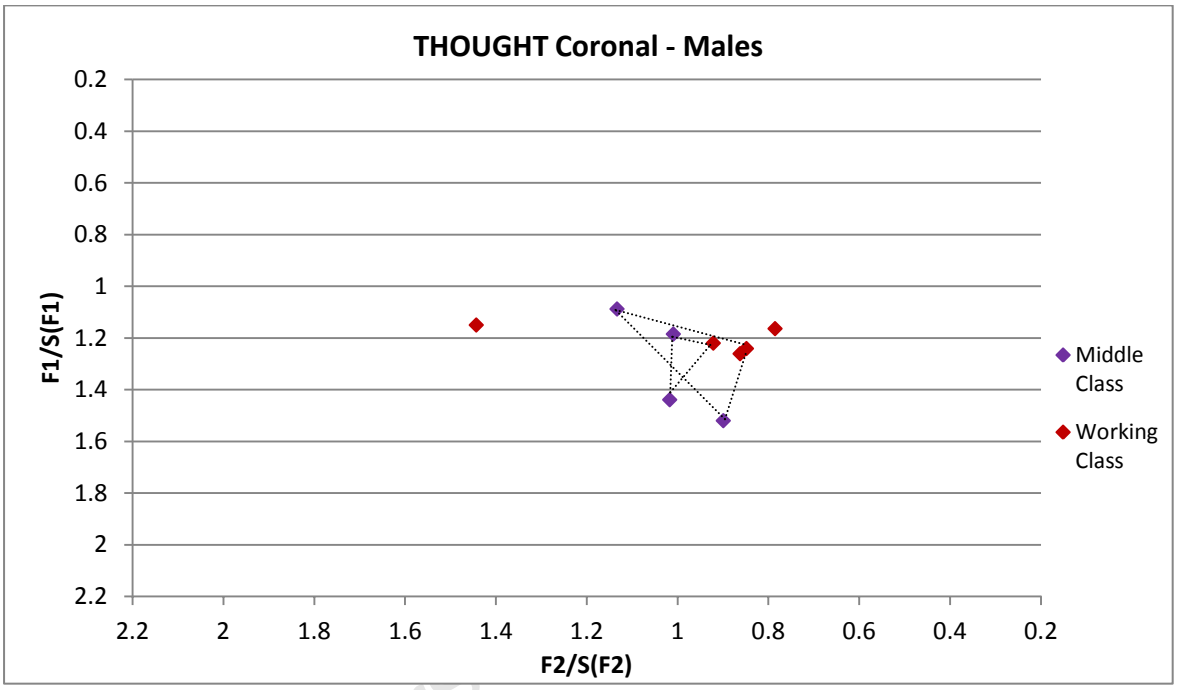


Figure 40: Normalised Mean Values for THOUGHT coronal for males per social class, showing class differences in height.

In general it would appear that there is no class bifurcation in the coronal environment for males since there is considerable overlap between the classes for both height (see appendix) and frontness. This is in direct contrast to the MC female results for THOUGHT in this environment, which shows clear class bifurcation in terms of height, suggestig gender differences in the middle class groups.

When compared to the White reference group, there are, as is visible on Figure 41, the MC speakers show no similarities in level of frontness, will all speakers significantly further forward than the White group (see t-test results in the Appendix, section 5.3.). The White speakers show no difference between them in their realisations along F2 (p=0.1737), which

shows that their norm for THOUGHT is fairly back. The White speakers do, however, show an internal difference for height, with one speaker realising THOUGHT significantly higher than the other (p=0.0014).

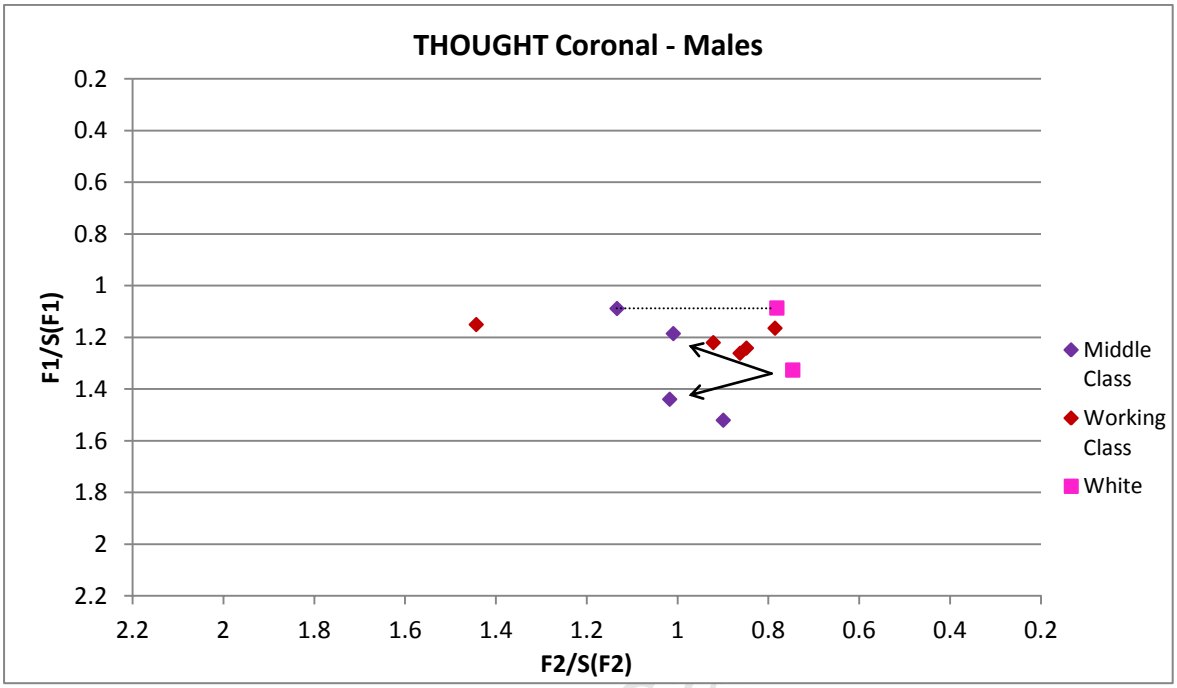


Figure 41: Normalised Mean Values for THOUGHT coronal for males per social class including White reference group.

The White speaker with the highest realisations overlaps with one MC speaker (p=0.4818), and this is the only instance of overlap between MC and the reference group. The White speaker with the lower realisations is not similar to any MC realisations, being either significantly higher (p=0.0332) or lower (p=0.0160) than the MC speakers closest to him along F1 (indicated by arrows).

In the non-coronal environment (Figure 42) the MC speakers show a similar level cohesion than they do in the coronal environment. Two norms for frontness (purple vertical line) emerge, with one being significantly fronter than the other (p=9.001E-05). In terms of height, however, there are only two speakers who are significantly similar (encircled, p=0.08), while the other two speakers are significantly different from each other (p=7.03446E-08) as well as the lower realisations. The WC speakers are still producing cohesive results, although in the non-coronal environment this cohesion is slightly less intact than for the coronal environment.

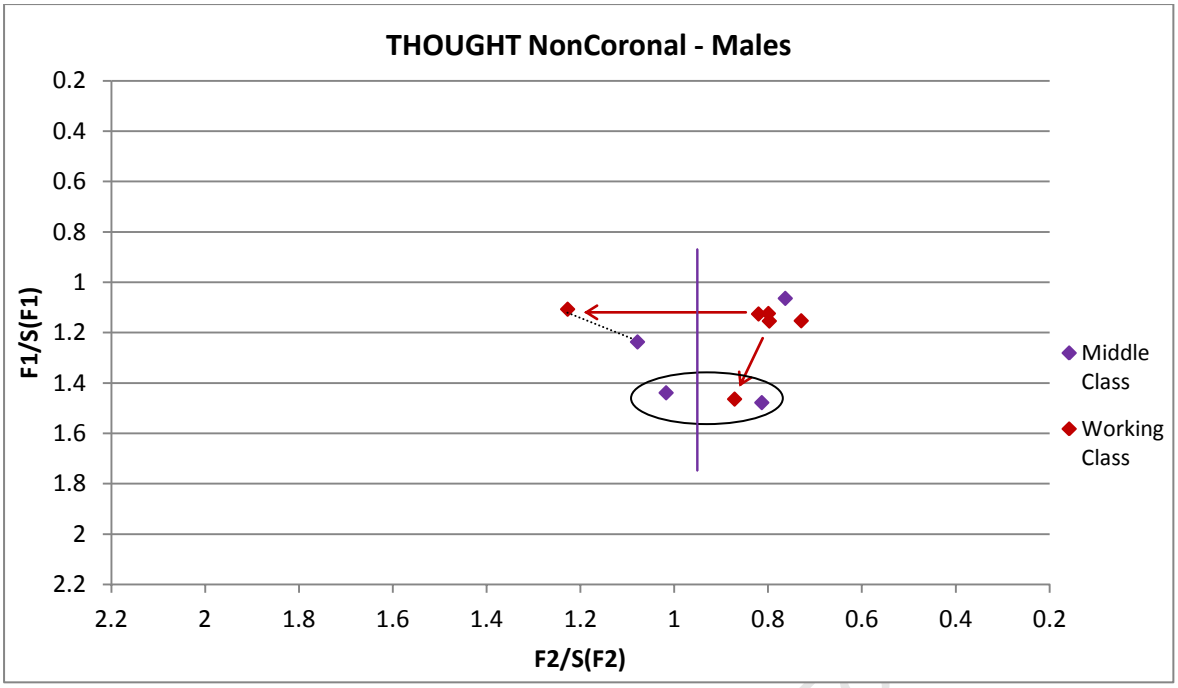


Figure 42: Normalised Mean Values for THOUGHT non-coronal for males per social class.

The majority of the WC speakers are bunched together and agree on both height and frontness. The exceptions (indicated by arrows) are one speaker who is significantly further forward, and another who is significantly lower than the rest of the speakers. Otherwise the WC speakers have a clear norm for THOUGHT in this environment.

Compared to MC, the majority of WC speakers (excluding the very front outlier) overlap with one MC norm for frontness, showing similar 'back' realisations. The WC outlier overlaps with a MC speaker (joined by a dotted line, p=0.1036), but since he is a WC outlier for frontness this similarity is not significant. The MC speakers show some class bifurcation in that they have (at least in part) fronter realisations than the WC for THOUGHT non-coronal. Future studies should take lip-rounding into account, since this could have an effect on frontness.

As far as height is concerned, all the WC speakers overlap with MC speakers in some way, although there are some differences (Figure 43). The speakers connected with the dotted lines are all significantly similar to each other in height, which shows a clear picture of class overlap. There is only one speaker who does not share height with any MC speakers, but since he is no significantly different to the majority of the WC speakers (who overlap with MC for height), this difference is not significant.

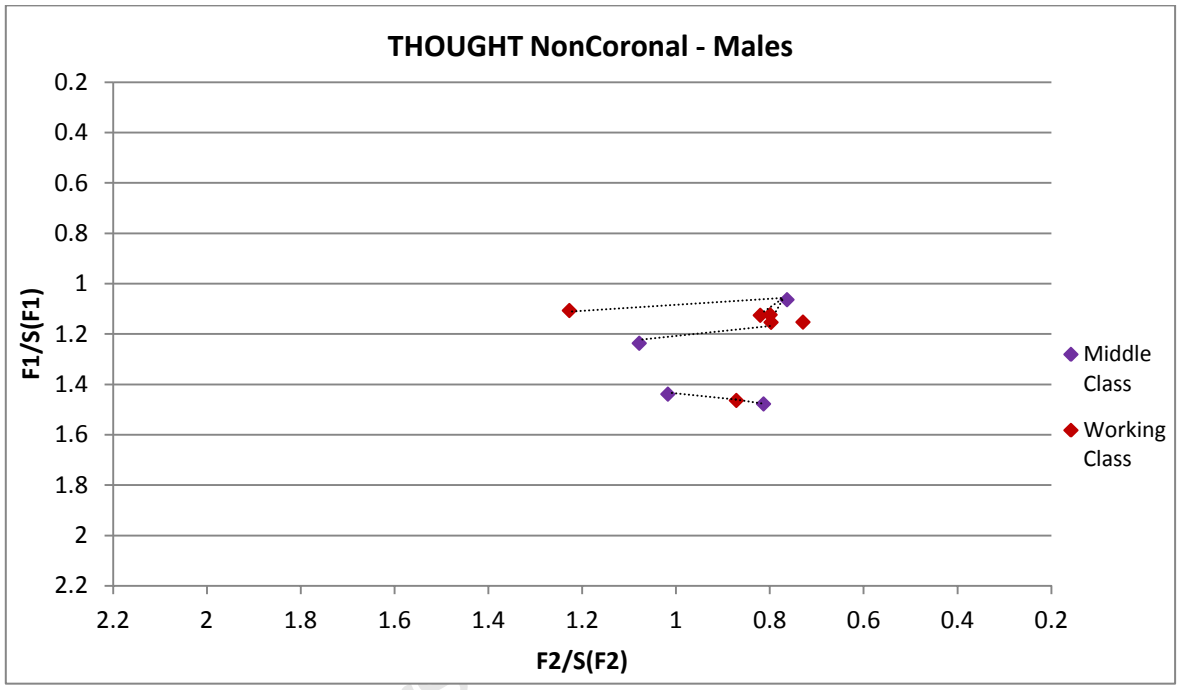


Figure 43: Normalised Mean Values for THOUGHT non-coronal for males per social class showing height overlaps.

In the non-coronal environment, therefore, there is no evident class differentiation for THOUGHT, save the fronter realisations by two MC speakers. The variations in height and frontness for the MC and WC speaker indicate, even though there is cohesion, that THOUGHT is undergoing change, and that both classes are in a transitioning phase as far as this change is concerned.

The White reference group (Figure 44) again show differences in height (p=0.033) and frontness (p=0.026) for THOUGHT Non-coronal, although the height differences are not as evident here as they were in the coronal environment.

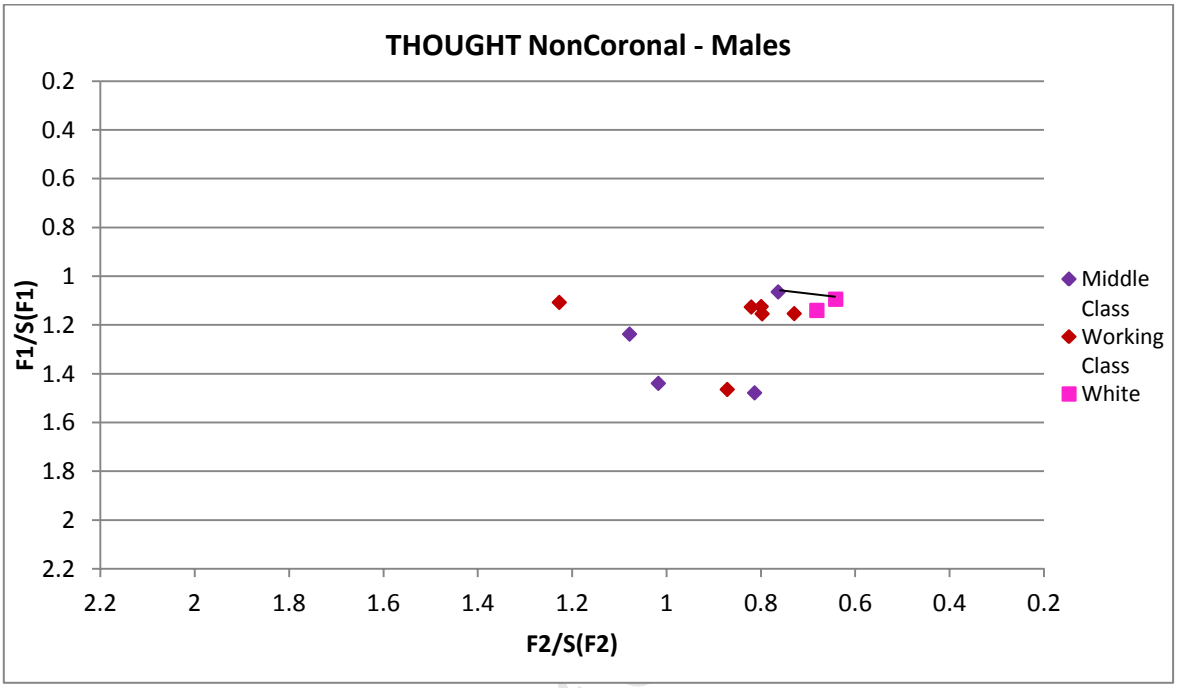


Figure 44: Normalised Mean Values for THOUGHT non-coronal for males per social class including White reference group.

There is no overlap between the majority of the MC speakers and the White speaker. The only MC speaker that overlaps (joined by a line), overlaps in both height (p=0.0823) and frontness (p=0.1298). Otherwise the MC speakers have consistently lower, fronter realisations than the White speakers.

4.4. Males vs Females

The next section provides a comparison between the males and the females, and also explores the differences between the environments in how THOUGHT is pronounced. The comparison is, for reasons of space, not exceptionally in-depth, providing a general overview more than anything else. Each social group is discussed separately. Statistical tests used the individual token values of each speaker, and the gender groups tested against each other without intra-group divisions.

Figure 45 below shows the comparison between the MC males and females for the coronal environment. The patterning of the speaker realisations for each gender is fairly clear, with the females producing higher realisations than the males. T-test results confirm this, with females having significantly higher realisations than males (p=2.64068E-11) although they do overlap in places. There are many instances of overlap along the F2 plane, with no one group standing out as fronter or backer than the other. Once again the t-test results confirm this, since no significant difference in frontness was found between the genders (p=0.3813).

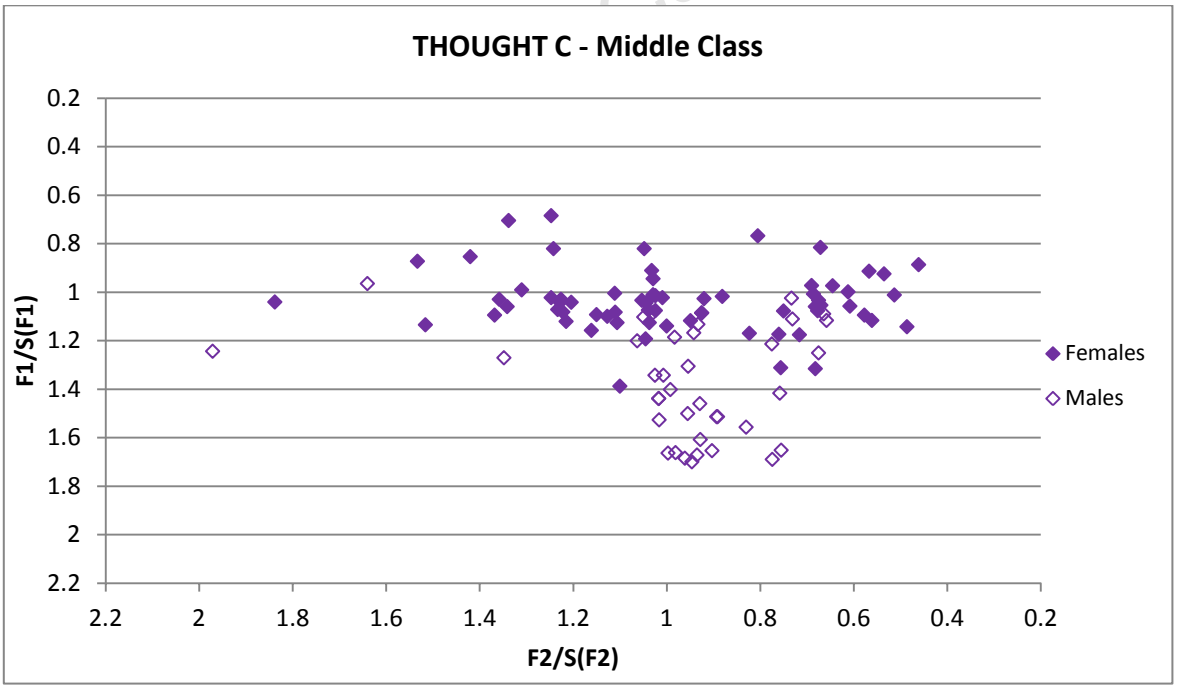


Figure 45: Normalised Individual Values for THOUGHT Coronal for MC, separated by gender.

In the non-coronal environment (Figure 46) the results are exactly the same. Visual interpretations match the t-test results, with the females having significantly higher realisations than the males (p=2.87296E-17), but again showing no difference in terms of frontness (p=0.0868).

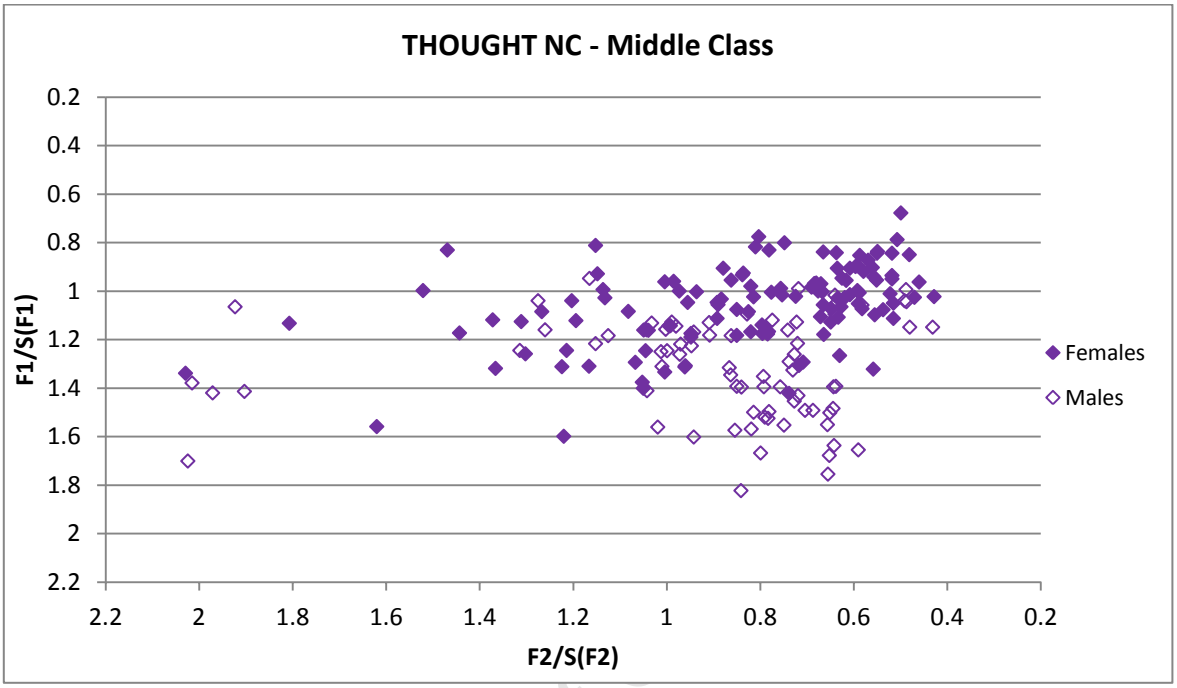


Figure 46: Normalised Individual Values for THOUGHT Non-Coronal for MC, separated by gender.

It seems, generally speaking, that the males and females agree on a norm for frontness for THOUGHT between coronal and non-coronal environments. While the females have significantly 'backer' differences in the non-coronal environment (p=0.0009), the males show no such difference (p=0.1189). As mentioned before, a raised variant of THOUGHT was prevalent in formal styles among speakers of SAIE (Mesthrie 2004, 957). Since the females are consistently producing higher realisations of this vowel than the males, it seems plausible that this raising might be infiltrating casual speech, as suggested earlier. Furthermore, this raising does not seem bound to environment, since the females do not differentiate between coronal and non-coronal according to height (p=0.2107).

The WC speakers are interesting in their gender comparison, producing opposite results to the MC (Figure 47). Here, the male speakers are producing THOUGHT Coronal significantly higher than the females (p=6.66649E-05) which is surprising given what the MC results are. There are no significant differences in frontness between WC males and females (p=0.4906).

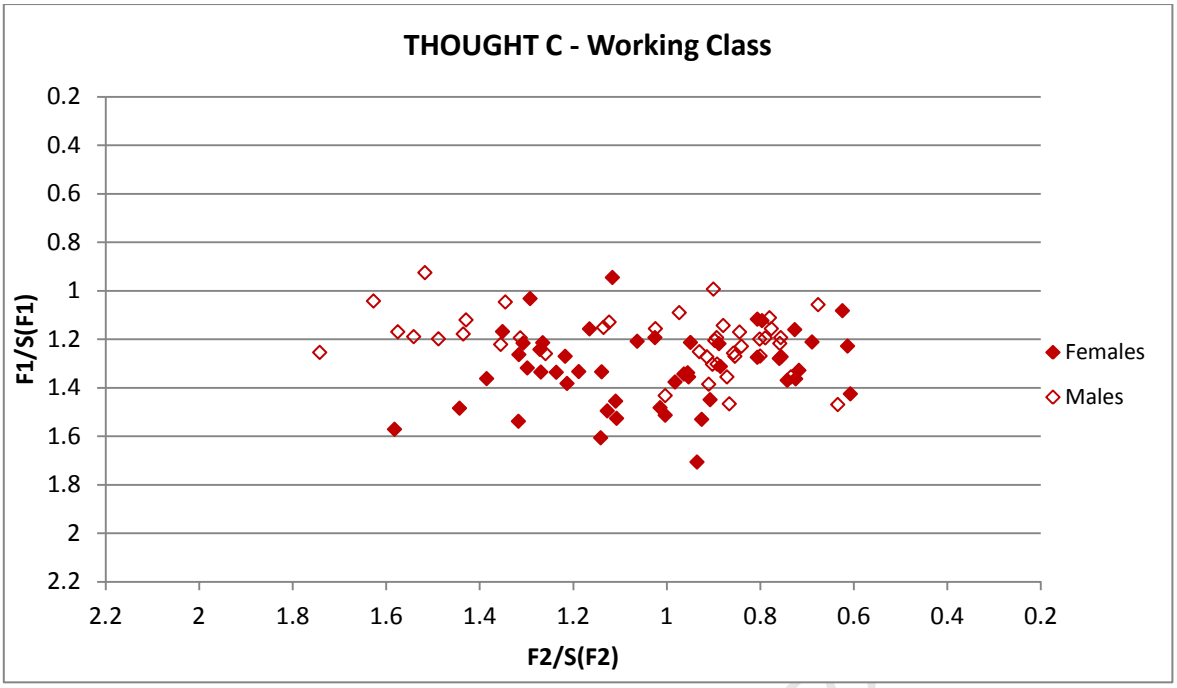


Figure 47: Normalised Individual Values for THOUGHT Coronal for WC, separated by gender.

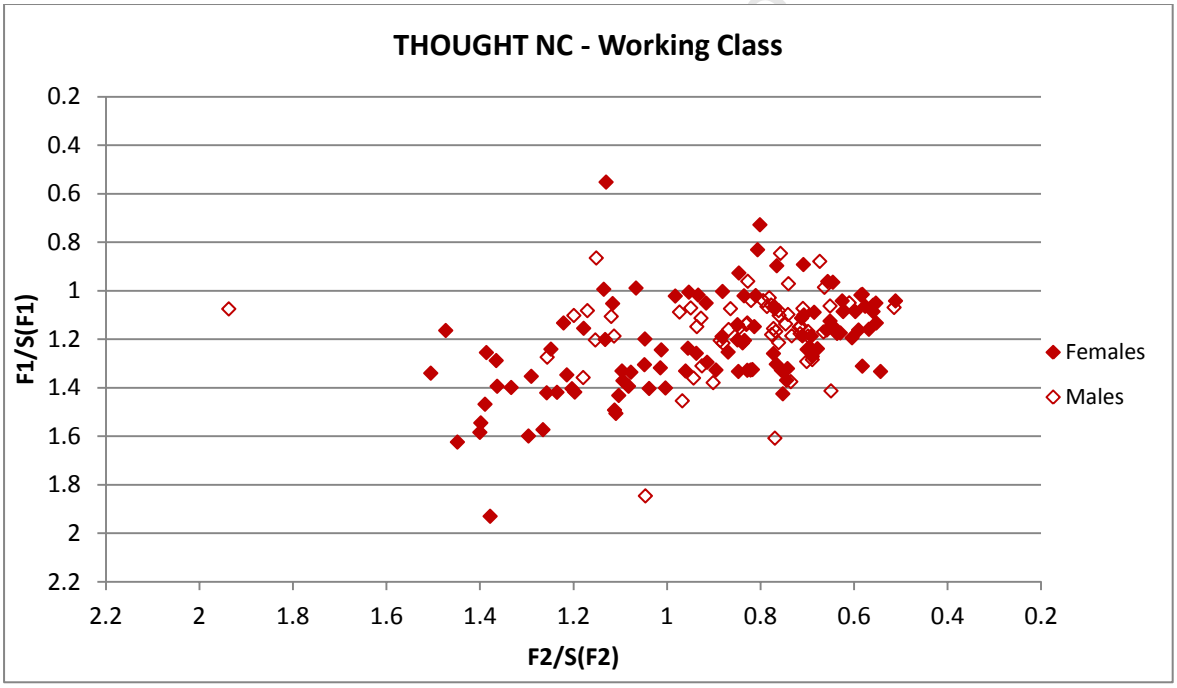


Figure 48: Normalised Individual Values for THOUGHT Non-Coronal for WC, separated by gender.

In the non-coronal environment (Figure 48) the results are slightly more blurred, but the t-test results confirm that the females are producing lower realisations than the males (p=0.0288). There is also a significant difference in fronting, with the female generally fronting more than the males (p=0.0526).

The females have significantly lower realisations in the coronal environment than in the non-coronal environment (p=0.0002), and significantly fronter realisations for THOUGHT after coronals (p=0.0036). The males have the same results, with lower realisations in coronal than in non-coronal (p=0.0466), and fronter realisations in the coronal environment (p=0.0005).

The reference group show a greater tendency towards a norm for thought in the coronal environment (Figure 49), with far less variation along F2 than the MC speakers. The females have higher (p=6.02912E-07) and fronter (p=0.0020) realisations than the males.

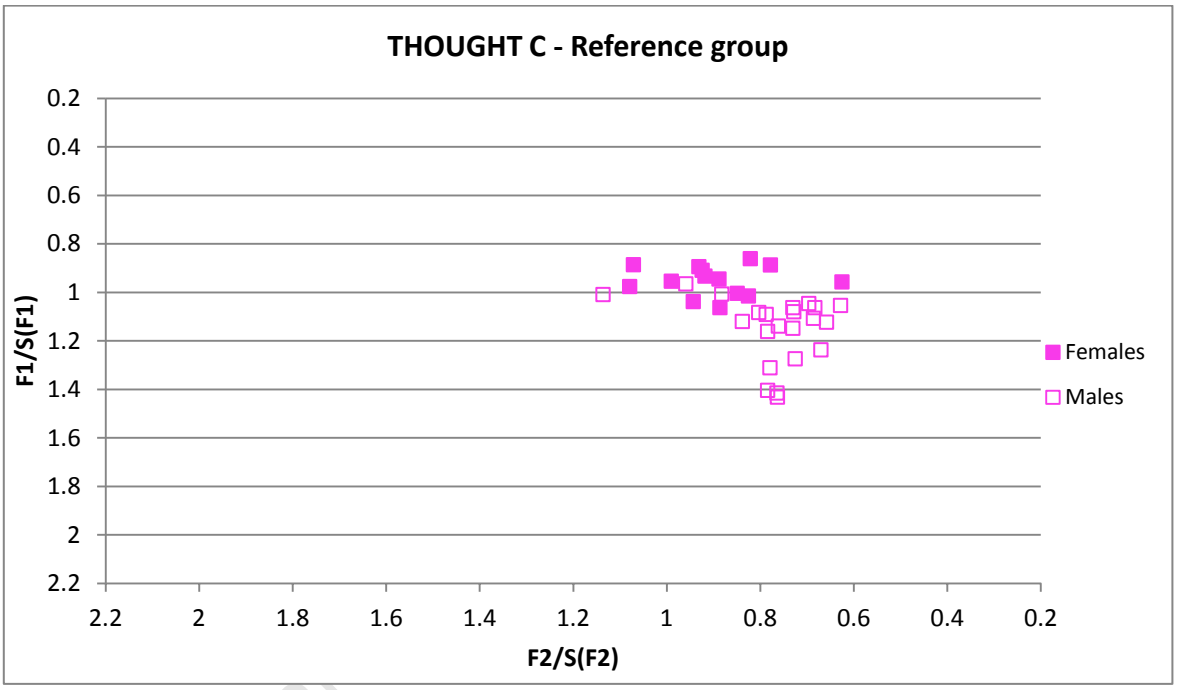


Figure 49: Normalised Individual Values for THOUGHT Coronal for the Reference Group, separated by gender.

The results for the non-coronal environment are the same (Figure 50), with the females once more having both higher (p-5.25458E-15) and fronter (p=0.0310) realisations than the males.

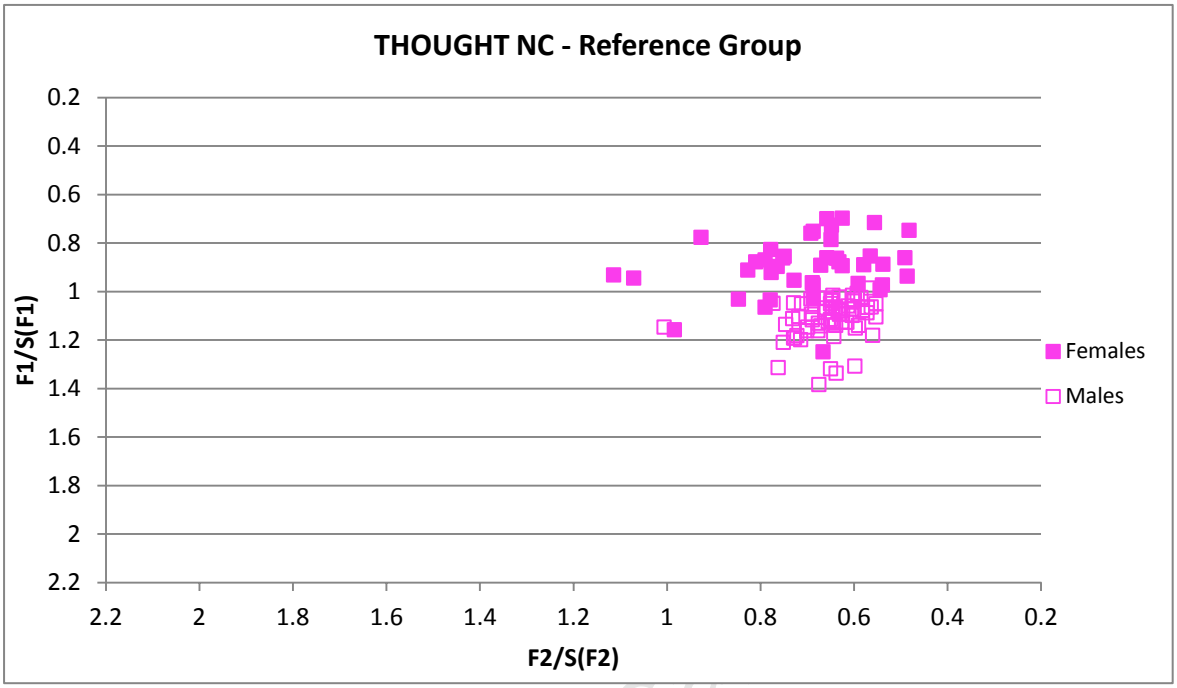


Figure 50: Normalised Individual Values for THOUGHT Non-Coronal for the Reference Group, separated by gender.

4.5. Conclusion

The results for THOUGHT are quite clear, as they were for NURSE, indicating that South African Indian English is a dialect which is very much in a transition period. The middle class group displays different results in terms of gender, with female speakers often showing clear class bifurcation, whereas the male speakers in this group have no clear patterning, showing very little in-group cohesion or norm as far as height and frontness concerned, and often overlapping with the WC males. The working class speakers also differ internally, but to a lesser degree than the middle class speakers, showing far more cohesion and norms as a group for both F1 and F2.

The middle class groups show a degree of gender variation (although there are similarities too) that is expected, with the females innovating norms more than the males. Since the males show much less internal cohesion or norm formation it appears that they are the process of changing how they pronounce THOUGHT. The gender variation within the working

class, however, shows an odd result in that the males are ahead of the females. Generally, gender is an important factor which, in addition to social class, affects the realisations of THOUGHT.

SAIE seems to be a dialect that is not showing a large degree of social class differentiation, although for THOUGHT there are clearer class boundaries for the female group. In the male data the middle class speakers overlap with the working class speakers more often than not, with great variation (diffusion) being the characteristic indicative of male middle class speech rather than concrete height or frontness differences. The working class speakers on the other hand seem to be characterised by a large degree of in-group cohesion (excluding the outliers identified). It is clear that the dialect is in a transition period for both NURSE and THOUGHT. It seems plausible that the next generation of South African Indian English speakers will show greater class differentiation.

CHAPTER 5: THE GOOSE VOWEL (LONG /u:/)

5.1. Introduction

This chapter will describe the behaviour of the GOOSE vowel in SAIE, bearing in mind what has already been noted for NURSE and THOUGHT. Bekker (2009, 308) notes that fronting of the GOOSE vowel has become associated with prestige, and accommodating a fronted GOOSE may be linked to class. Based on his 1992 data, and recordings from the late 1990s and 2000, Mesthrie (2004, 957) described GOOSE in SAIE as the following:

> This vowel tends to retain a back, rounded quality [ʊ̟]; the centralised and weakly-rounded quality [ʊ̞] spreading in young peoples' L1 English world-wide is not generally part of (SAIE). Younger (SAIE) speakers may well have the latter [ʊ̟̞] as a stylistic option. After palatalised consonants as in *few, news* the centralised [ʊ̟̞] is the norm.

Since the social context in South Africa has changed, the extent to which the South African Indian English speakers front GOOSE (or not) is expected to be related to class, with the middle class speakers, especially females, showing clear class bifurcation with fronter realisations than the working class group. The initial hypothesis related to the characteristics of GOOSE for MC and WC speakers is that the WC speakers will retain back variants of this vowel, with the MC speakers feeling the influence of the general fronting of this vowel by other speakers of South African English. Furthermore, based on the results of Mesthrie's 2010(b) study, the MC speakers are expected to front the GOOSE vowel, with some speaker resisting fully fronted realisations.

To aid the description of GOOSE, as well as the comparison between MC and WC, a fronting scale (Figure 51) based on one created by Mesthrie (2010b, 12) is used. This scale links the ratios obtained from *S*-procedure normalisation and the high vowels as follows:

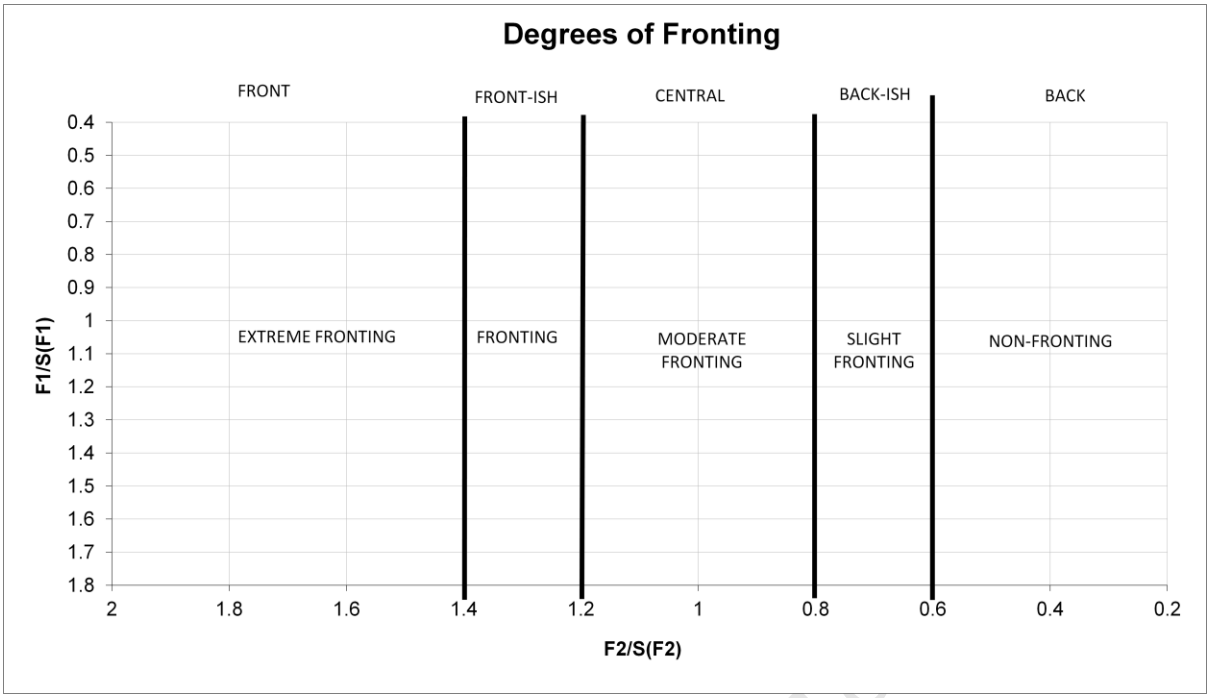


Figure 51: schema for measuring the degree of fronting, based on *S*-procedure ratios.

The scale runs from 0.2, the backest value, to 2.0, the frontest value, with 10 intervals in-between these values. 1.0 is the centre point, and the interval on each side of the centre point provides an intermediate space between central and front (1.4 to 1.2), and central and back (0.8 to 0.6). The range between 1.4 and 1.2 is 'frontish', and 0.8 to 0.6 is 'backish'. Mesthrie (2010b, 12) notes that "in the traditional vowel chart these would still be in the central range (for high vowels), and therefore correspond to a notion of front-central and back-central respectively". Fully front values are from 2.0 to 1.4, and fully back values are from 0.6 to 0.2. This scale only works on a single dimension for high vowels. The vowel space for other positions is not linear.

The environmental division of GOOSE, Table 7, follows Mesthrie (2010b). In each case, the GOOSE vowel was preceded by coronal sounds (as in *suit*, *do*, *shoe*) non-coronal sounds (such as *move*, *boot, coop*) or /j/ (as in *you*, *used*, *fuse*).

Group	Coronal	Non-Coronal	J	Total
WC Female	46	17	58	121
WC Male	62	14	49	125
MC Female	102	67	64	233
MC Male	117	43	86	246
White Female	33	14	19	36
White Male	34	9	17	60

Table 7: Number of normalised tokens for GOOSE, per environment.

The tokens analysed per environment were compared statistically according to social class and gender. To fully describe the behaviour of this vowel, environments were also compared to one another based on gender within each social group. As with NURSE and THOUGHT, the analysis will focus on (a) females, (b) males, and (c) a gender comparison.

5.2. Results: Females

The graph below (Figure 52) visualises the results for GOOSE coronal for the females. The MC and the WC speakers seem to have no real differences in fronting, with the spread appearing more or less even.

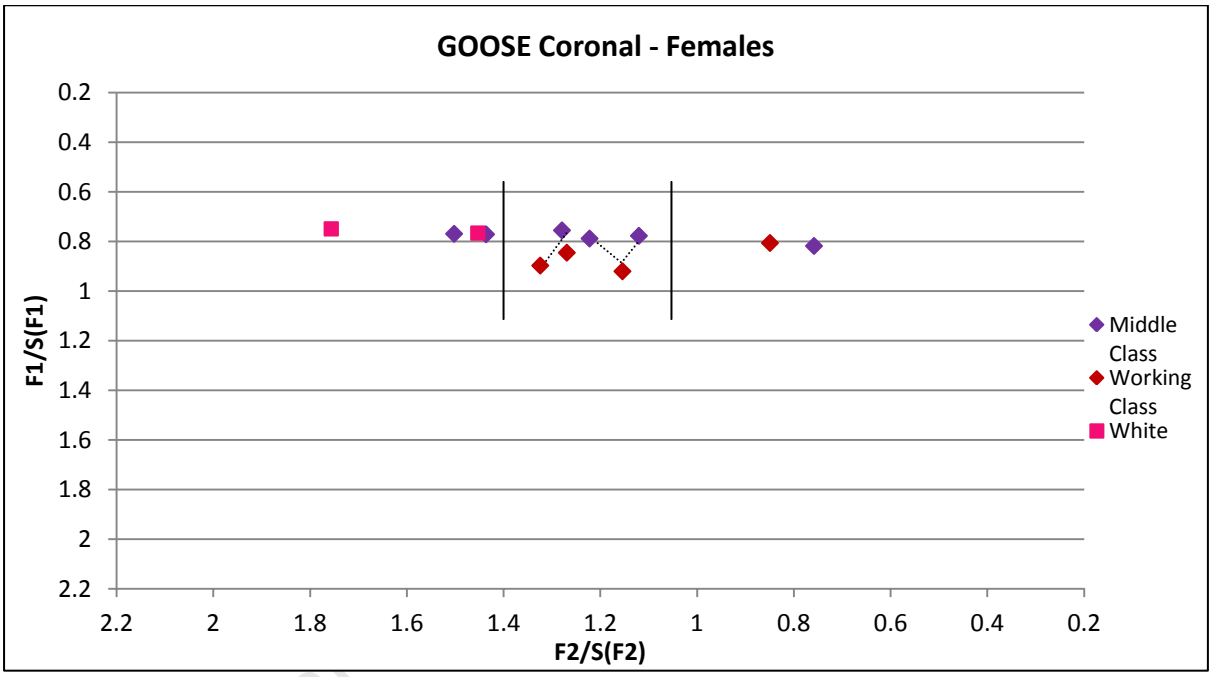


Figure 52: Normalised Mean Values for GOOSE coronal for females per social class, including the reference group.

According to the fronting scale (Figure 51), the MC group are realising GOOSE ranging from back-ish to front. Two speakers display extreme fronting, three speakers display moderate fronting, and one speaker (hence an outlier along F2) displays slight fronting. Excluding the outlier for the time being, two separate realisations are evident in the data (indicated by vertical lines). The first two MC speakers are clearly fronting GOOSE, with the majority of the speakers also fronting it, but to a lesser extent[51], which meets the expectations set out in section 5.1. The majority of the WC speakers overlap with the level of frontness of the MC group, where the expectation was that their realisations would be back. The WC speakers

[51] p=0.0005 for fronting between these speakers.

are in fact moderate fronters of GOOSE, showing no significant differences to the MC speakers for F2.

Most studies of GOOSE have so far considered fronting, with height variation not expected to occur. However, there are significant height differences[52] where WC has lower realisations than MC (different realisations joined by dotted lines), and interestingly, both the WC outliers overlap with the height levels of the MC.

In comparing the MC to their reference group, it is evident that there is some level of accommodation. The White speakers, as well the MC speakers they are closest to, display extreme fronting, and there are no significant differences between them (p=0.181). The majority of the MC speakers therefore, although there is consistent fronting of this vowel, show some resistance to the norms of the reference group, holding back from a fully fronted GOOSE. The WC speakers are fronting GOOSE in the same way as the MC speakers, which as mentioned before is an unexpected result.

Figure 53 shows the realisations in the non-coronal environment. Once again the MC speakers have three separate realisations (vertical lines), displaying slight, moderate and extreme fronting. The MC speakers fronting the most are not significantly different in their realisations of GOOSE compared to the reference group. This shows that some MC speakers are accommodating White norms, with other speakers holding back and fronting significantly less.

[52] p=0.0334, p= 0.001 and p= 0.0078.

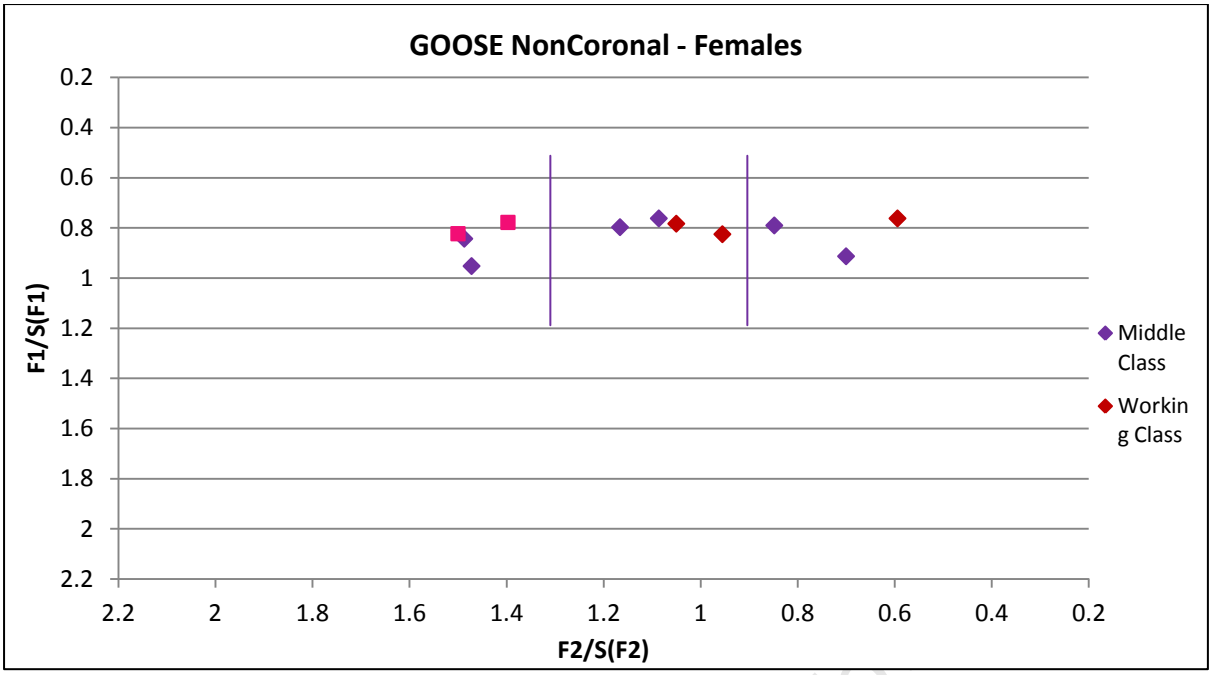


Figure 53: Normalised Mean Values for GOOSE non-coronal for females per social class, including reference group.

The WC speakers have two separate realisations of GOOSE in the non-coronal environment, one showing moderate fronting, and one which shows no fronting (although this is only made up of one speaker and so may not be generalisable). The majority of the WC speakers therefore overlap with some of the MC speakers: those between the vertical lines are not significantly different in terms of fronting (p=0.1857). As opposed to the coronal environment there are no significant height differences between the speakers, with only one or two MC speakers who show slightly lower realisations.

The non-coronal environment produces similar results as the coronal environment, with significant overlap between MC and WC. The MC group is characterised, however, by having greater variation along the F2 plane than the WC speakers in both environments. The MC speakers consistently produce realisations further forward and further back than the WC speakers, with the realisations in the middle overlap with the WC.

For GOOSE which occurs in J-words (Figure 54), there are fewer speakers than for the other environments, purely because a lot of J-words experience vowel reduction in connected speech. *You* and *used to*, for example, are rarely pronounced with a fully long vowel in some speakers.

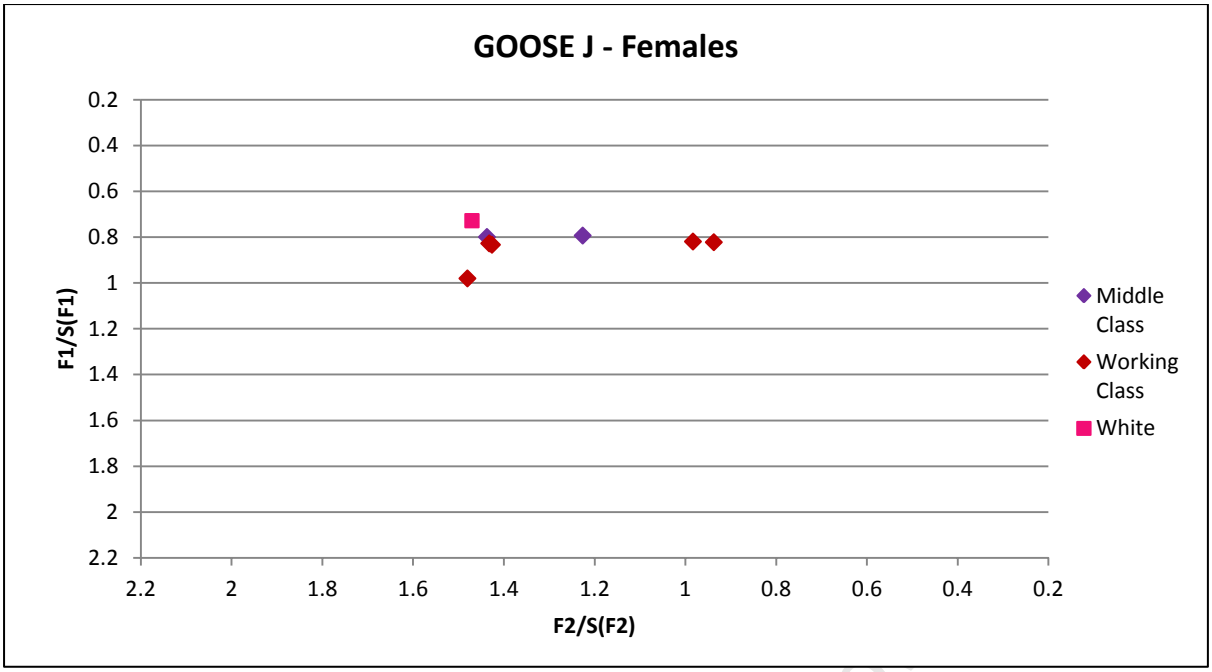


Figure 54: Normalised Mean Values for GOOSE after /j/ for females per social class.

In this environment the WC speakers produce two distinct realisations significantly different from each other along F2. First realisation displays extreme fronting, and the second moderate fronting. The MC speakers have greatly reduced in number, with one speaker showing extreme fronting and the other just fronting. Only one MC speaker overlaps with the reference group, fronting significantly more than the other MC speaker (p=0.023).

Preceding /j/ is a naturally fronting environment, where SAIE has centralised GOOSE as the norm (Mesthrie 2004, 957). The fact that the WC displays extreme fronting in this environment and not in the others indicates that fronting of GOOSE occurring after /j/ started before fronting in the coronal and non-coronal environments.

For the female group there is a large degree of overlap between the middle class and the working class, with both groups clearly fronting GOOSE, albeit in different ways and to different degrees. As mentioned before, this result is unexpected, and no clear social class differentiation occurs. Variation along the F2 plane shows some patterning, and proves that SAIE, as spoken by young females irrespective of class is in a transition period. The only characteristic the MC can claim as a characteristic is a larger degree of variation in fronting. Where the WC speakers largely agree the extent to which they front GOOSE, there is not the

case for the MC speakers. In most cases there are three significantly different degrees of fronting between MC speakers, which indicates some diffusion within this group.

5.3. Results: Males

The male realisations For GOOSE coronal are shown in Figure 55. As opposed to the MC female group, the MC male group are largely the same in the way they front this vowel. The majority of MC speakers have moderate fronting, with one very back speaker displaying no fronting at all (who is an outlier in this case). Within the group of males who front GOOSE moderately, there is one speaker who is fronting significantly more towards front-central than the rest (p=0.0361, indicated by the arrow), but since the general degree of fronting for

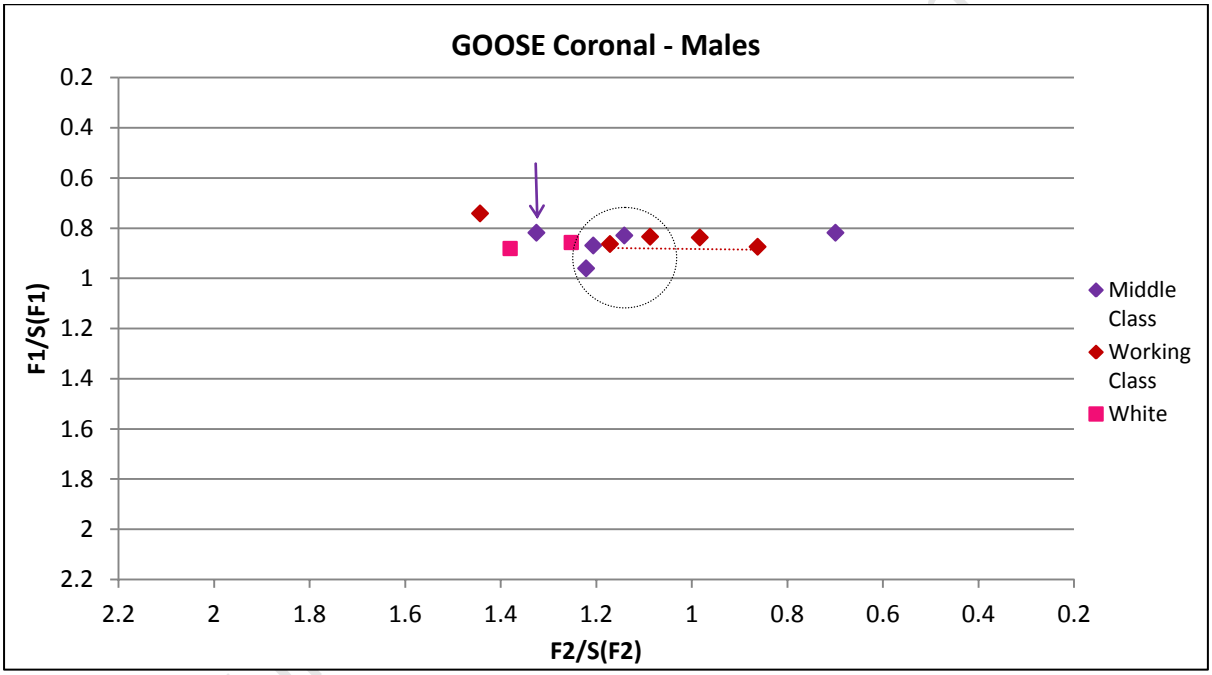


Figure 55: Normalised Mean Values for GOOSE coronal for males per social group.

this speaker is no different to the rest of the speakers, there is reason to call this speaker an outlier. There is significant overlap between the MC and the White reference group (excluding of course the outlier).

The WC group are also largely agreed on a moderate degree of fronting (excluding the lone speaker fronting to the extreme[53]), and although two speakers show significant differences

[53] Section 2.1. outlines the case of Jalil in that he sometimes represents **a class of his own**. This is a case in point, were he does not fit in with WC or MC realisations of GOOSE in this environment, showing extreme fronting. Due to his increased social mobility and social networks, this might be a case of hyper-correction.

in fronting (joined by dotted line, p=0.0229) it is clear that the WC speakers as a whole are cohesive in their realisations along the F2 plane. In comparison to the MC group the WC speakers seem to have backer realisations although two speakers overlap with MC realisations (within the circle).

There is a clear pattern of fronting in this environment for the male group. All the groups are fronting GOOSE, albeit to varying degrees. The patterning within the male group is not as clear-cut as for the females, showing some overlap between the social classes and the reference group:

MC > MC&WC > WC

The above representation of the levels of fronting within the male group shows an interesting pattern. A MC group fronts the most, overlapping with the White reference group and thus showing some overlaps of norms. There are similar degrees of fronting between a MC and a WC group, with both groups fronting GOOSE, but to a lesser extent than the other MC speakers. The variation along the F1 plane suggests minor differences in height between speakers in various places, but these are not prominent enough to indicate that there is a significant difference in height between the MC and the WC speakers. Although there are numerous similarities between the MC and the WC groups, there is some indication of class bifurcation: the MC speakers have fronter realisations than the WC speakers in general. This result is not entirely unexpected, although the strong agreement between MC and WC indeed is.

In the non-coronal environment (Figure 56), there are clear visual patterns relating to both height and fronting. For both groups the non-coronal realisations do not have the same range in F2 as those in the coronal environment. The range for non-coronal is from 0.6 to about 1.1, which is backer than the range between 0.8 and about 1.3 for coronal realisations. Both groups therefore seem to front GOOSE more when it occurs after a coronal sound.

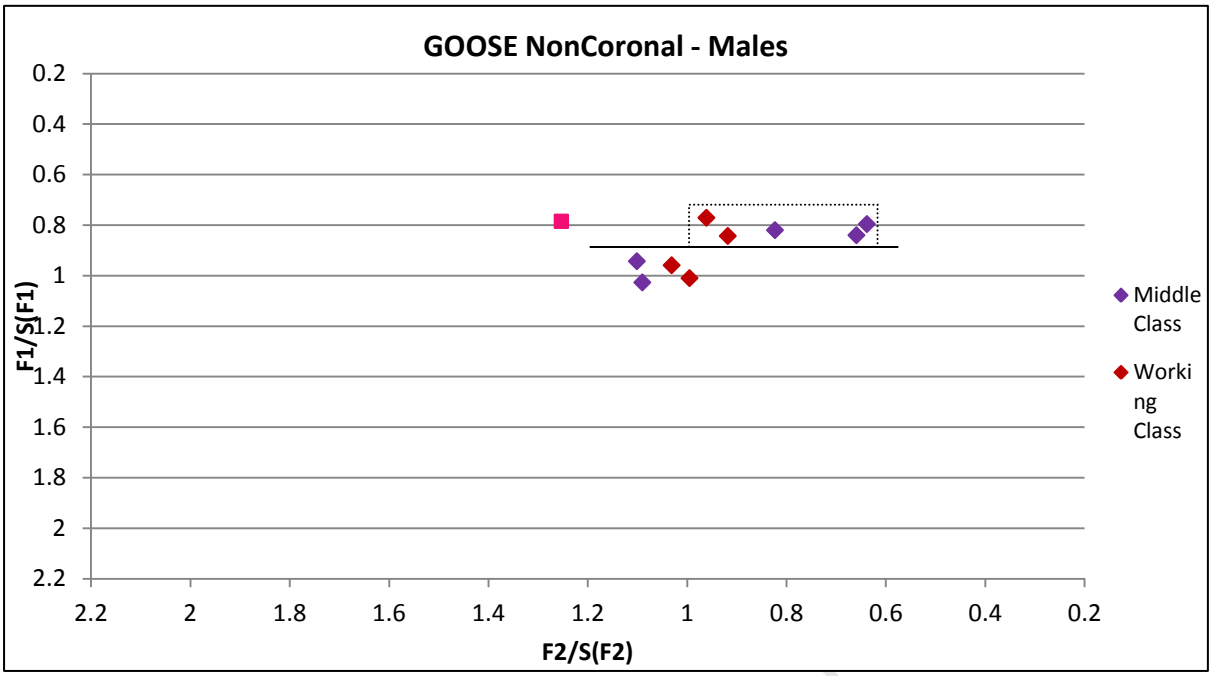


Figure 56: Normalised Mean Values for GOOSE non-coronal for males per social class

The MC speakers are still showing some diffusion in their realisations, with two clear and very different norms for fronting (moderate vs slight). The speaker in between these two MC realisations is siglificantly further back than those who front moderately (p=0.0017) and those who front slightly (p=0.0055), and as such is an outlier. Both MC realisations are clearly not as far front as the front-ish realisation of the reference group. Interestingly, the MC realisations are not only different in frontness but also in height (indicated by horizontal line). The speakers who realise GOOSE as front-central have lower realisations than the speakers with the back-ish vowels (p=0.0071), which is once again an unanticipated difference. The speakers who are fronting the least are overlapping with the White norm for height.

Strong cohesion for GOOSE Non-Coronal is present in the WC data, with all speakers exhibiting moderate fronting. There is a clear height difference, however, where two speakers have significantly higher realisations for GOOSE than the others (p=0.0454). The MC and WC groups therefore show very similar patterns for GOOSE Non-Coronal: both groups have realisations differing in degree of fronting and height. Although there are similarities in height between the two social groups, they do not overlap completely for degree of

fronting. The speakers in the square are significantly different (excluding the MC outlier), with the WC speakers producing fronter vowels than the MC (p=0.0060).

Some class differentiation is evident, with some MC males retaining backer variants of GOOSE where the WC speakers front unanimously. The MC group is furthermore characterised by a greater degree of diffusion than WC, in that they have realisations that are significantly difference along F1 and F2. The WC speakers show much more cohesion as a group, only differing in height realisations.

GOOSE as realised before /j/ presents an entirely different picture (Figure 57). The MC speakers show a high degree of diffusion, with their realisations mostly differing in height as well as degree of fronting.

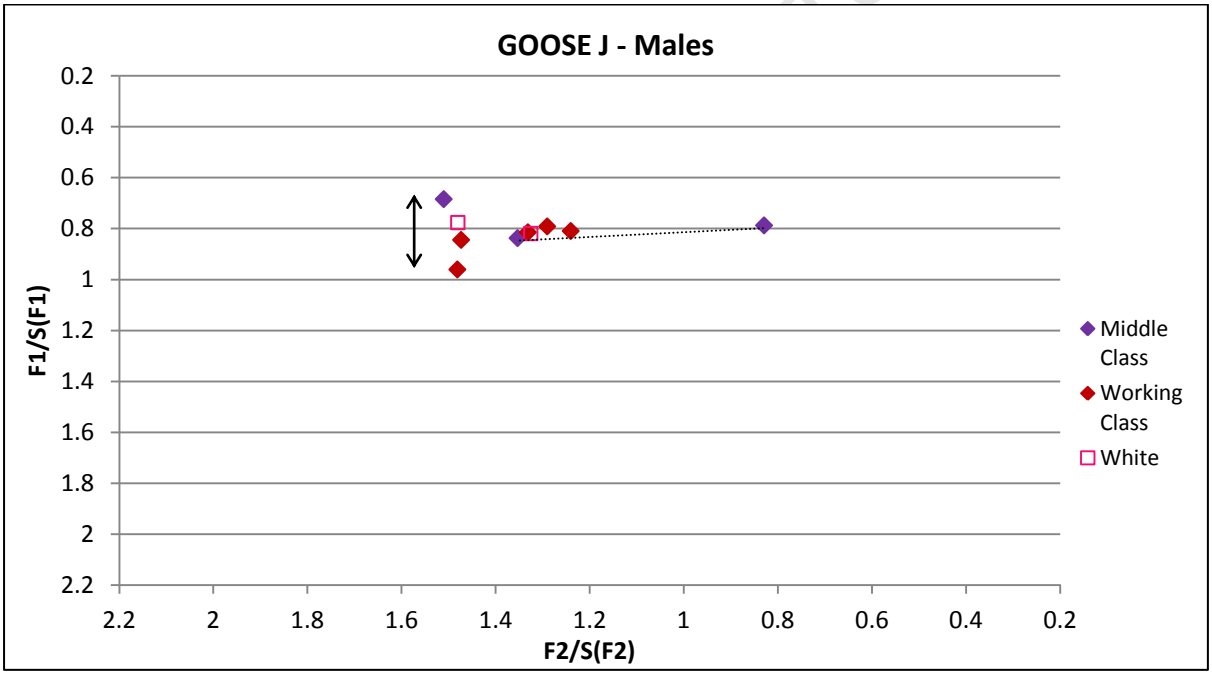


Figure 57: Normalised Mean Values for GOOSE after /j/ for males per social class.

There is only one overlap between the MC speakers (joined by a dotted line) along the F1 plane (p=0.1635). All the MC speakers are however fronting GOOSE, displaying moderate fronting, fronting, and extreme fronting. Compared to the reference group speakers (who incidentally differ significantly for fronting) the MC speakers show similar fronting tendencies.

The WC group are, again, realising GOOSE in a cohesive way, with the majority of the speakers similar in vowel height and frontness. Two speakers, however, realise GOOSE significantly fronter than the majority (p=0.0102), and as such two realisations constitute the norms for WC GOOSE after /j/. Both these realisations show the same tendencies for fronting as MC speakers even though the MC speakers themselves do not. There is a difference in height between a MC speaker and a WC norm (indicated by the arrow), but since this MC speaker is the only speaker producing such a high vowel it seems unlikely that this difference carries any significance.

These results can be attributed to the nature of /j/-vowel combinations. As has been noted throughout the preceding sections, GOOSE is traditionally centralised when it occurs after /j/, and this environment is therefore one which has been experiencing fronting longer than C and NC. Most of the realisations for GOOSE in the J environment are evenly split between front and frontish for all social groups concerned, which shows that this environment is one where fronting is stabilising. The back-central realisation of a MC speaker is slightly unexpected given the rest of the results, which may indicate hyper-correction on this speaker's part. The overlaps between MC and WC for fronting show that there are no clear class bifurcations regarding fronting, not entirely surprising in an environment where fronted realisations have been the norm for some time. As is to be expected by now, the only clear difference between the social classes is the high level of diffusion among MC, with each speaker behaving individually, and the high level of cohesion among the WC.

For the male group, it is clear that the norms of the groups are changing. Both the WC and the MC groups are fronting GOOSE, albeit in different ways dependent on environment and to different degrees. The high degree of variability shows some patterning, and proves that SAIE, as spoken by young males, is a dialect that is not yet stable in its norms, with clear negotiation occurring especially in the MC group.

5.4. Males vs Females

The next section provides a comparison between the males and the females, and also explores the differences between the environments in how GOOSE is pronounced. The comparison is, for reasons of space, not exceptionally in-depth, providing a general overview more than anything else. Each social group is discussed separately. Statistical tests used the individual token values of each speaker, and the gender groups tested against each other without intra-group divisions.

Males and females from the working class seem to realise GOOSE after coronal sounds in a very similar way (Figure 58). The spread along F2 is the same for both genders, although there seem to be some height variation within this group.

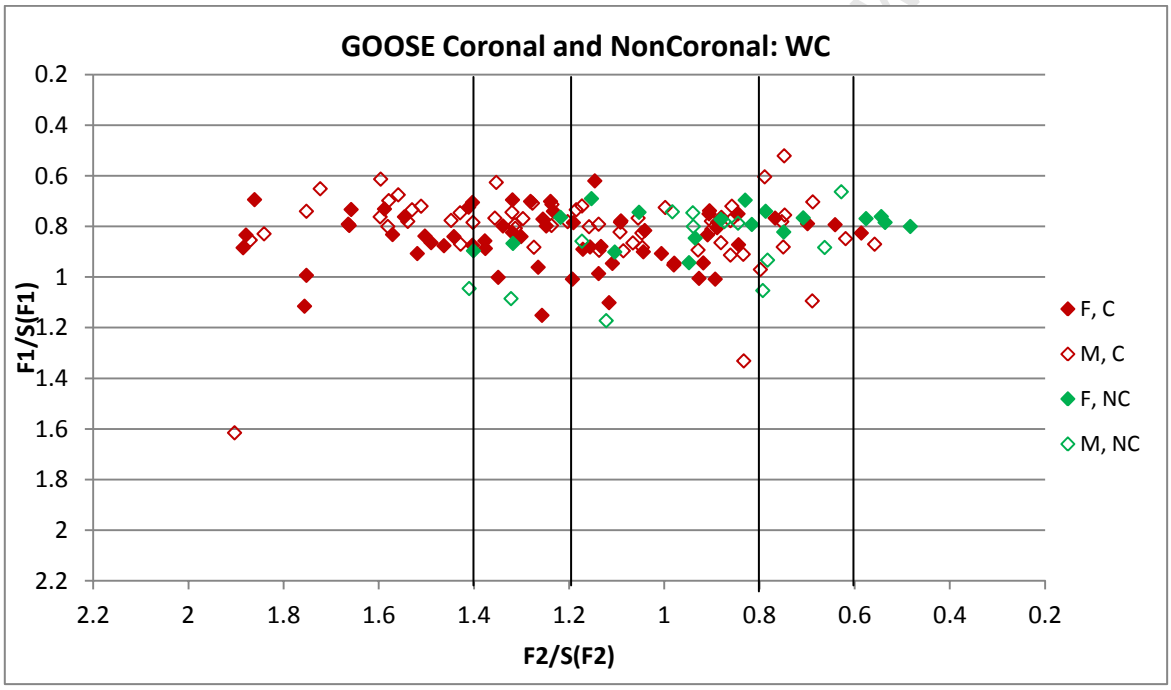


Figure 58: Normalised Mean Values for GOOSE coronal and non-coronal for working class, separated by gender.

Statistically, there is no significant difference between the male and female realisations of GOOSE in the coronal environment (p=0.0878 for F1 and p=0.1543 for F2). Interestingly, the WC speakers produce realisations of this vowel that covers the full range of fronting possibilities (indicated by vertical lines, cf. Figure 51). The majority of the realisations by both genders display fronting, with only two realisations, one male, one female, that are fully back. As discussed earlier, these results are unexpected: the initial hypothesis for the WC group was that they would realise GOOSE mostly as high back. This is clearly not the case

as the majority of their realisations are in fact central to fully front. There are no previous studies to indicate whether this is an old or a new norm.

The non-coronal environment (also Figure 58) produces realisations that are quite clearly further back than the majority of the realisations for the coronal environment, showing mostly centralised realisations. The females seem to have a larger spread of F2, producing fully back realisations which are not present in the male data. This difference is not statistically significant, however (p=0.2328). In terms of F1, the males have lower realisations than females in general (p=0.0345).

The realisations for GOOSE as they occur after /j/, as expected, are much further forward (Figure 59), with the majority of speakers exhibiting between fronting and extreme fronting.

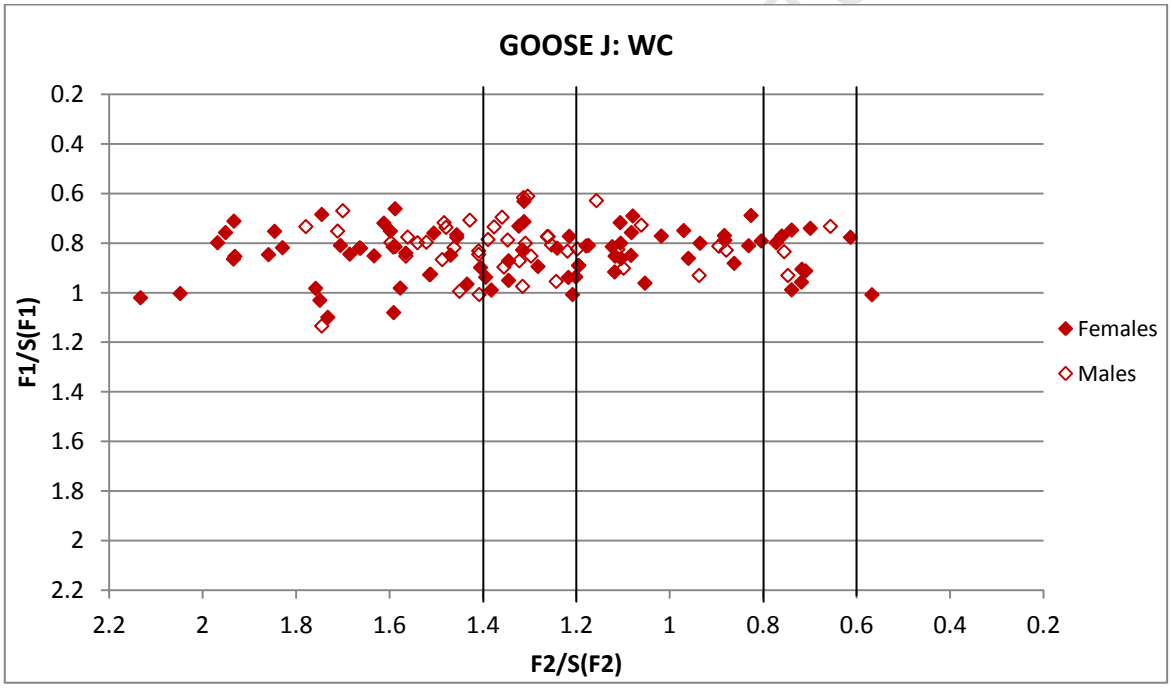


Figure 59: Normalised Mean Values for GOOSE J for working class, separated by gender.

There are no differences between the genders for either F1 or F2 that are statistically relevant. One difference, however, is that the males front more after /j/ than after both coronal and non-coronal sounds (p=0.0032 and p=4.83E-09), whereas females treat the coronal and J environments the same, fronting less in the non-coronal environment (p=3.07E-18).

It is clear, both from the gender comparison as well as earlier analyses, that the working class speakers in this sample are not retaining a back GOOSE as expected. Indeed, the majority of the realisations for GOOSE are at least centralised, with very few fully back realisations indicating that they are innovating in some way. Their social networks and contacts are very different to the middle class speakers' in that they do not have the same amount of language contact with general South African English (having attended HOD schools). As such the motivation for the frontward move of GOOSE must be motivated by other factors than those of the middle class group.

To attempt to determine the cause of the mostly centralised (and often fronted) variants of GOOSE in the WC, we selected two older speakers (one female, in her 70s, and one male, in his 60s) of SAIE from the working class community for comparison, albeit impressionistically. After listening to these speakers intently, we drew the conclusion that GOOSE in the WC context is complicated. The difference between the WC and the MC is evident in some lower and centralised WC variants. The WC speakers in this sample all produce fronter realisations of GOOSE than the older speakers in general (though there is variation among the older speakers), although there are some instances where GOOSE was centralised by the older female. This indicates that the WC speakers are possibly carrying on with an innovation set in motion by the older generation rather than being influenced by general South African English tendencies.

The MC females have higher realisations[54] for GOOSE in the coronal environment than the males (Figure 60). The spread along the F2 plane is large, with realisations ranging from fully back to fully front, although the majority of the speakers show moderate to extreme fronting. The males, however, have more back-ish and back vowels than the females.

[54] p=2.91492E-10

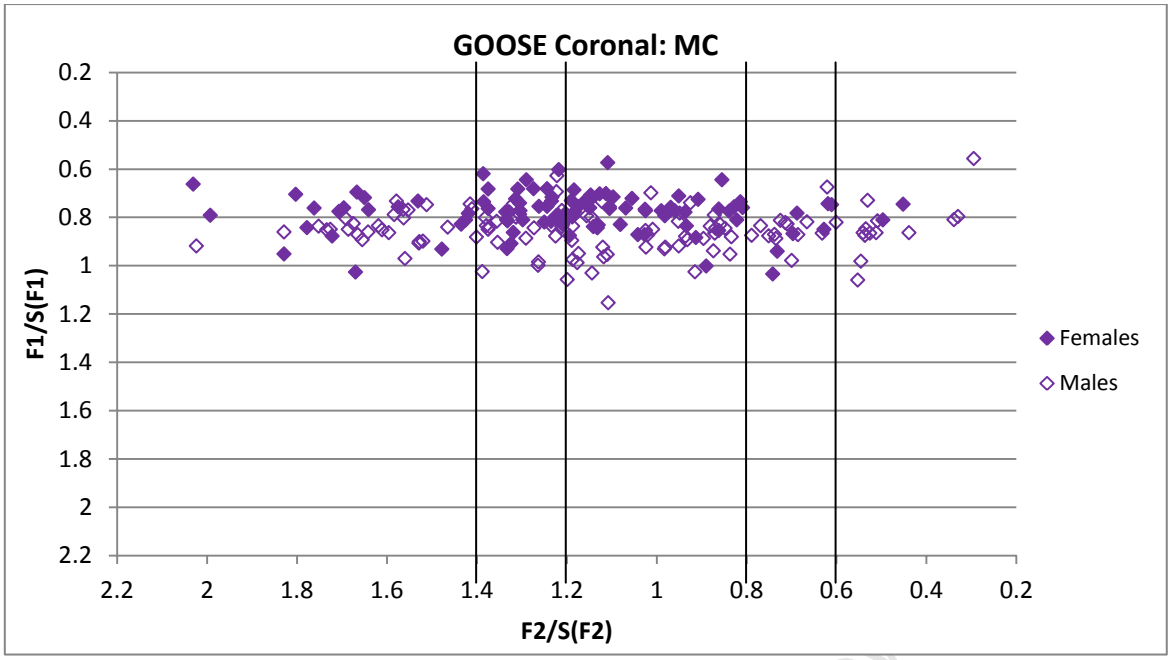


Figure 60: Normalised Mean Values for GOOSE Coronal for middle class, separated by gender.

In the non-coronal environment (Figure 61) the spread along the F1 plane seems to increase dramatically from the 0.5 – 1.2 of coronal, to 0.6 to just below 1.4. There are clear differences in height in the realisations of both the male and the female group, indicating there is indeed something happening to vowel height in the middle class group, particularly in this environment. As expected, the t-tests show no significant gender difference for fronting (p=0.2285), although there is a significant difference in height (p=0.0012), with the majority of the speaker realising GOOSE ranging from a back to a front-ish vowel.

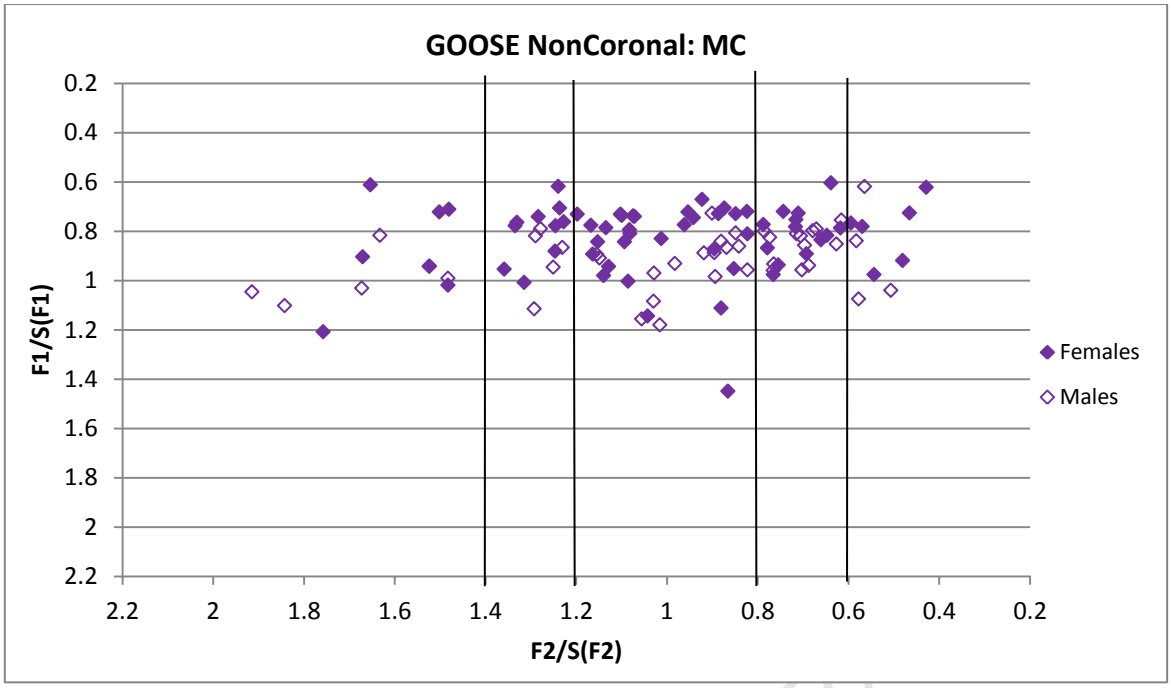


Figure 61: Normalised Mean Values for GOOSE Non-Coronal for middle class, separated by gender.

The females have backer realisations for non-coronal than they did for coronal (p=0.0001), and they also lower the vowel when it occurs after a non-coronal sound (p=0.0065). Likewise, the males have both lower (p=0.0041) and backer (p=0.0123) realisations in the non-coronal environment. For GOOSE realised after /j/ (Figure 71), there is a clear difference

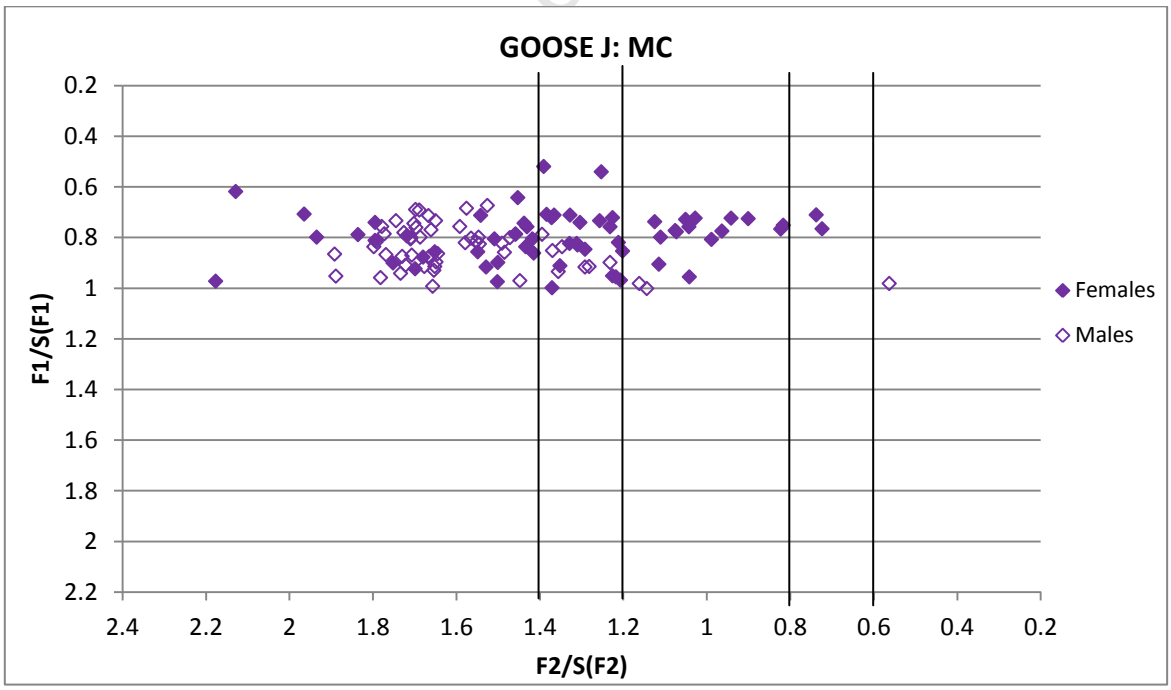


Figure 62: Normalised Mean Values for GOOSE J for middle class, separated by gender.

between the males and the females. The females are much more spread out along F2, showing degrees of fronting ranging mostly from moderate to extreme. The males on the other hand, are mostly displaying extreme fronting, with only a handful of speakers elsewhere along F2. The differences in height are less obvious, but t-test results show that the males in general have lower realisations than the females (p=0.0056) although there is clearly some overlap.

Both males and females front GOOSE significantly more[55] in the J environment than in the coronal environment (and by extension the non-coronal environment). This is not surprising since fronting in after /j/ has been occurring for a while. An interesting result of this is that, while J is clearly the environment favoured for fronting, the non-coronal environment is least favoured. In terms of articulation this makes sense, since both /j/ and coronal sounds are produced with the front part of the tongue, whereas non-coronals either use the back of the tongue or the lips (in which case the tongue is mostly at rest[56]). Fronting is clearly part of middle class GOOSE, and as such it is clear that the fronting norms of general South African English have had an influence on middle class SAIE.

The high occurrence of height differences between MC males and females indicates that there is something interesting happening to height in GOOSE. This area, however, requires further study, a bigger sample and perhaps age-graded data.

[55] p=1.14E-18 for males, and p=0.0020 for females.
[56] As would be the case for oral bilabial sounds. For nasal sounds the tongue would be raised towards the velum somewhat to force the air out of the nose.

The White reference group displays some variation along F2 (Figure 63), but the majority of the speakers are clearly producing front or front-ish realisations of GOOSE. There is a surprisingly large degree of variation among the reference group speakers. Since this group is included in this study more as a point of comparison for the MC speakers, and since there is limited space, I shall only briefly list the significant differences without going into much detail.

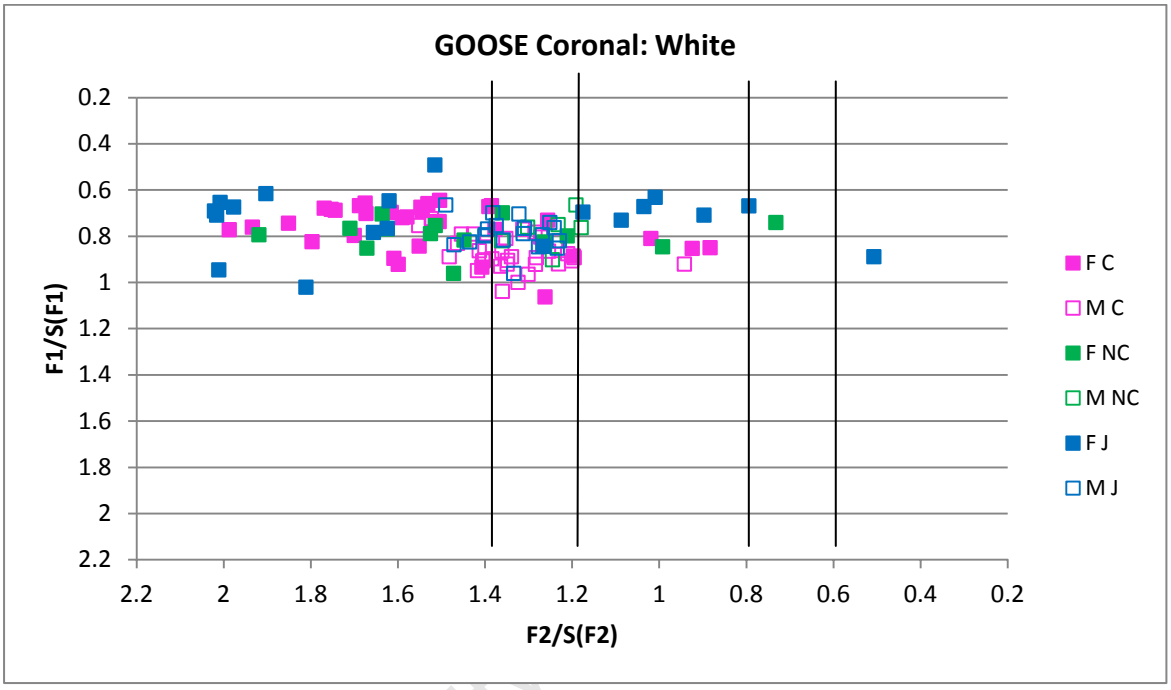


Figure 63: Normalised Mean Values for GOOSE for White speakers, separated by gender.

The males have significantly lower realisations than the females for the coronal (p=1.109E-06) and the J (p=0.0054) environments. The females front GOOSE significantly more than the males in the coronal (p=0.0001) and non-coronal environments (p=0.0261). There are very few central and back realisations of GOOSE, which shows clearly that the process of fronting is near completion for this group.

5.5. Conclusion

GOOSE, initially expected to produce the most straightforward results in terms of class bifurcation (given previous studies) has proven to be a vowel that is anything but stable in South African Indian English. Not only are there very little differences between MC and WC speakers where we expected many, there is a large degree of diffusion within the social groups showing no clear norm formations or maintenance. In some cases the MC speakers have two well-defined, yet separate realisations of GOOSE, only to be individualistic in their pronunciation in others. As with both NURSE and THOUGHT, the only clear class markers are degrees of diffusion and cohesion. The MC speakers seem to be consistently diffuse, where the WC speakers have far more focussed realisations. This could tie in nicely with work by Milroy (1980) on social networks and change.

Both groups are innovating when it comes to GOOSE fronting, but for different reasons. The WC speakers are closer to the realisations that appear in some older WC SAIE speakers, whose recordings we listened to.MC speakers on the other hand are being more likely influenced by fronting trends in general South African English. There seem to be innovations along the F1 plane in addition to fronting, but further and more detailed study is required in this area.

CHAPTER 6: CONCLUSIONS

6.1. Brief Summary and Conclusions

The speakers in this short study of three vowels in South African Indian English more often than not showed surprising and unexpected results. Where our initial hypothesis predicted clear class bifurcation between the middle and working class, our speakers proved otherwise. More often than not the working class realisations of NURSE, THOUGHT and GOOSE matched the realisations of the middle class speakers. The only instance where there was clear class differentiation was for the variable THOUGHT in the female group, where the middle class females produced realisations consistently higher than those of the working class.

Although there is a great degree of overlap between the middle and working classes, the analysis of the three variables point to one prominent difference: diffusion. The middle class speakers showed overwhelming diffusion in their realisations for all of the variables, often having different realisations for each speaker, or having separate norms in the same environment. The working class on the other hand showed a higher level of in-group cohesion, often agreeing on norms within environments and hardly showing individualistic realisations (apart from Jalil who seemed to be a continuous outlier).

It is clear that the middle class speakers are in a post-Apartheid flux as far as their dialect of English is concerned. There is not much uniformity between them and they are sometimes ahead of the working class along F2, and sometimes behind. This is not to say that the working class speakers met our initial expectations, however. This group too is characterised by variation along both the F1 and the F2 plane for the three variables, often not realising the vowels in the way expected them to. While they show a greater degree of cohesion as a sample from the working class speech community, it is clear that their dialect of English is also undergoing some norm re-negotiation, especially for the THOUGHT and GOOSE vowels.

The influences on the middle and working classes are different, however. The middle class speakers have different social networks, and attended schools where there was contact with speakers of other varieties of South African English. As such, many (but not all,

however) of the realisations of NURSE, THOUGHT and especially GOOSE, seem to have been influenced by the norms of the middle class lects of South African English.

The working class, however, have very different social networks in that they are still active members of the Indian community, and attended schools where the Indian dialect of English is prevalent. To say that these speakers are influenced by the general norms of White South African English would not be accurate. Instead, as was shown by GOOSE, they innovate apparently internally with probable influences from the older generation.

South African Indian English is a dialect that is very complex in terms of accent. While there are clear class differences in elements of syntax and morphology (as discussed in Chapter 1), accent seems to be an aspect of the dialect being negotiated to such a degree that it is almost impossible to find patterning, the only clear conclusion being that there is currently no pattern. The Indian speakers in the sample (particularly from the middle class), have not accommodated to the prestige variety with all the speakers as much as for example young middle class Black South Africans (as found by Mesthrie, 2010b), and are resisting these norms to varying degrees. It is clear, however, that the dialect is in a state of flux and that language change or new dialect adoption is a process that occurs faster in some speech communities than others.

At this stage it is not possible to say precisely how South African Indian English will develop: patterns of schooling, desegregation of neighbourhoods and social relations will all have a part to play.

6.2. Recommendations.

Throughout the analyses it became apparent that South African Indian English is a dialect which is a more complex that initially anticipated. As such, some of the methods used for analysis could be improved upon. A longer study than the current one (perhaps a PhD dissertation) would make use of a more sophisticated programme for its statistical analysis, investigating the possibility of testing both F1 and F2 simultaneously. Furthermore, the effect of F3 on vowel quality would need to be ascertained, since for a variable like THOUGHT rounding (and unrounding) is most certainly occurring and may have an effect on fronting.

The complexity of the dialect furthermore highlighted numerous possibilities for future research that is not as limited by space and sample size as the current study is. A study making use of a larger sample including older speakers (and perhaps age-graded data) would be able to accurately describe the changes occurring in terms of height. Both social groups (and White speakers) in this study showed interesting gender variation along the F1 plane which could not be expanded on due to the limited sample (and space). Another interesting study, of all dialects of South African English, is the extent to which back vowels are becoming fronted. The THOUGHT data in this study presented results similar to the GOOSE data, showing that both these vowels are being fronted, perhaps acting together. If these back vowels are undergoing fronting, it would be interesting to investigate whether (and how) or not (and why) the other back vowels are fronting, and which dialects are affected.

Works Cited

Bekker, I. (2009). The Vowels of South African English. Unpublished Phd thesis: North West University.

Boersma, P., & Weenink, D. (2010). Praat, a system for doing phonetics by computer. *(Version 5.1.45)* . Retrieved from www.praat.org.

Bowerman, S. (2004). White South African English: phonology. In E. G. Schneider, K. Burridge, B. Kortmann, R. Mesthrie, & C. Upton (Eds.), *A Handbook of the Varieties of English. Volume 1: Phonology* (pp. 931-942). Berlin: Mouton de Gruyter.

Bunting, Ian. 2002. The higher education landscape under apartheid. In *Transformation in Higher Education: Global pressures and local realities in South Africa.* Nico Cloete, Richard Rehnel, Peter Maasen, Teboho Moja, Helene Perold and Trish Gibbon (Eds.) Lansdowne: Juta 58-86.

Butler, C. (1985). *Statistics in Linguistics.* Oxford: Basil Blackwell.

Chambers, J. K. (2009). *Sociolinguistic Theory: Linguistic Variation and its Social Significance* (Revised ed.). Oxford: Wiley-Blackwell.

Da Silva, A. B. (2007). *South African English: A Sociolinguistic Investigation of an Emerging Variety.* Unpublished PhD thesis: University of the Witwatersrand.

Delbridge, S. A. (2006). Aspiration in South African Indian English. Unpublished Masters Thesis: University of Cape Town.

Dennis, T. L. (2008). Changing Sociolinguistic Identities of young, middle class 'Coloured' people in post-apartheid Cape Town. Unpublished Masters thesis: University of Cape Town.

Di Paolo, M., Yaeger-Dror, M., & Wassink, A. B. (2011). Analysing Vowels. In M. Di Paolo, & M. Yaeger-Dror (Eds.), *Sociophonetics: A Student's Guide* (pp. 87-106). Oxon: Routledge.

Fabricius, A. (2007). Variation and change in the TRAP and STRUT vowels of RP: a real time comparison of five acoustic data sets. *Journal of the International Phonetic Association, 37* (3), 293-320.

Finn, P. (2004). Cape Flats English: phonology. In E. G. Schneider, K. Burridge, B. Kortmann, R. Mesthrie, & C. Upton (Eds.), *A Handbook of the Varieties of English. Volume 1: Phonology* (pp. 964-984). Berlin: Mouton de Gruyter.

Fought, C. (1999). A majority sound change in a minority community: /u/-fronting in Chicano English. *Journal of Sociolinguistics*, 5-23.

Gimson, A. C. (1989). *An Introduction to the Pronunciation of English* (4th ed.). Great Britain: Edward Arnold.

Hopwood, D. (1928). *South African English Pronunciation.* Cape Town: Juta.

Jacobs, A. (2008). A sociophonetic Study of two vowels, GOOSE and NURSE, in terms of gender in South African Indian students from KwaZulu Natal. Honours Research Essay, UCT.

Labov, W. (1972). *Sociolinguistic Patterns.* Philadelphia: University of Pennsylvania Press.

Labov, W. (1980). The Social Origins of Sound Change. In W. Labov (Ed.), *Locating Language in Time and Space* (pp. 251-264). New York: Academic Press INC.

Labov, W. (1994). *Principles of Linguistic Change Volume 1: Internal Factors.* Cambridge, Oxford: Blackwell.

Labov, W. (2001). *Principles of Linguistic Change Volume 2: Social Factors.* Oxford, Massachusetts: Blackwell.

Labov, W. (2006). *Social Stratification of English in New York City* (2nd ed.). New York: Cambridge University Press.

Ladefoged, P. (2006). *A Course in Phonetics* (3rd ed.). Boston: Thomson Wadsworth.

Lanham, L. W. (1967). *The Pronunciation of South African English.* Cape Town: Balkema.

Lanham, L. W., & Macdonald, C. A. (1979). *The Standard in South African English and its Social History.* Heidelberg: Groos.

Lass, R. (1990). A 'standard' South African Vowel System. In S. Ramsaran (Ed.), *Studies in the Pronunciation of English: a Commemorative Volume in Honour of A.C. Gimson.* (pp. 272-85). London: Routledge.

Lass, R. (1995). South African English. In R. Mesthrie (Ed.), *Language and Social History* (pp. 89-106). Claremont: David Philip.

Lass, R. (2002). South African English. In R. Mesthrie (Ed.), *Language in South Africa* (pp. 104-126). Cambridge: Cambridge University Press.

Mesthrie, R. (1987). From OV to VO in Language Shift: South African Indian English and its OV substrates. *English World-Wide*, 263-276.

Mesthrie, R. (1991). *Language in Indenture: A Sociolinguistic History of Bhojpuri-Hindi in South Africa.* Johannesburg: Witwatersrand University Press.

Mesthrie, R. (1992). *English in Language Shift: The History, Structure and Sociolingustics of SAIE.* Cambridge: Cambridge University Press.

Mesthrie, R. (1992). *A lexicon of South African Indian English. Leeds: Peepal Tree Press.*

Mesthrie, R. (1993). South African Indian English. *English Today, 9* (2), 12-16.

Mesthrie, R. (2002). From Second Language to first language: Indian South African English. In R. Mesthrie (Ed.), *Language in South Africa* (pp. 339-354). Cambridge: Cambridge University Press.

Mesthrie, R. (2004). Indian South African English: Phonology. In E. G. Schneider, K. Burridge, B. Kortmann, R. Mesthrie, & C. Upton (Eds.), *A Handbook of the Varieties of English. Volume 1: Phonology* (pp. 953-963). Berlin: Mouton de Gruyter.

Mesthrie, R. (2010a). *A Dictionary of South African Indian English.* Cape Town: UCT Press.

Mesthrie, R. (2010b). Sociophonetics and Social Change: Deracialisation of the GOOSE Vowel in South African English. *Journal of Sociolinguistics, 14* (1), 3-33.

Mesthrie, R., & Bhatt, R. (2008). *World Englishes: The Study of New Linguistic Varieties.* Cambridge: Cambridge University Press.

Milroy, L. (1980). Language and Social Networks. Oxford: Blackwell.

Milroy, L., & Gordon, M. (2003). *Sociolinguistics: Method and Interpretation.* Oxford: Blackwell Publishing Ltd.

Pienaar, C. (2007). Towards a Corpus of Indian South African English (ISAE): and investigation of lexical and syntactic features in a spoken corpus of contemporary ISAE. Unpublished Masters Thesis, Rhodes University.

Strang, B. M. (1970). *A History of English.* London: Methuen.

Thomas, E., & Kendall, T. (2007). *NORM: The vowel normalisation and plotting suite.* Retrieved 2010, from http://ncslaap.lib.ncsu.edu/tools/norm/index.php

Thompson, L. (1952). Indian Immigration into Natal (1860-1872). In C. Beyers, P. Venter, J. Frankien, H. Thom, A. Pelzer, G. Botha, et al. (Eds.), *Archives Year Book for South African History* (Vol. II, pp. vii-76). Parow, Cape Province: Cape Times LTD for the Government Printer.

Underhill, L., & Bradfield, D. (1996). *IntroSTAT* (2nd ed.). Kenwyn: Juta.

Van Rooy, B. (2004). Black South African English: phonology. In E. G. Schneider, K. Burridge, B. Kortmann, R. Mesthrie, & C. Upton (Eds.), *A Handbook of the Varieties of English. Volume 1: Phonology* (pp. 943-952). Berlin: Mouton de Gruyter.

Van Rooy, B. (2002). Stress Placement in Tswana English: the makings of a coherent system. *World Englishes, 21*, 145-160.

Van Rooy, B. (2000). The Consonants of BSAE: currrent knowledge and future prospects. *South African Journal of Linguistics, Supplement 38*, 55-87.

Van Rooy, B., & Van Huyssteen, G. B. (2000). The vowels of BSAE: current knowledge and future prospects. *South African Journal of Linguistics, Supplement 38*, 15-99.

Watt, D., & Fabricius, A. (2002). Evaluation of a technique for improving the mapping of multiple speakers' vowel spaces in the F1~F2 plane. In D. Nelson (Ed.), *Leeds Working Papers in Linguistics and Phonetics* (Vol. 9, pp. 159-173).

Watt, D., Fabricius, A., & Kendall, T. (2011). More on Vowels: plotting and normalisation. In M. Di Paolo, & M. Yaeger-Dror (Eds.), *Sociophonetics: A Student's Guide* (pp. 107-118). Oxon: Routledge.

Wells, J. C. (1982a). *Accents of English 1: An Introduction.* Cambridge: Cambridge University Press.

Wells, J. C. (1982b). *Accents of English 3: Beyond the British Isles.* Cambridge: Cambridge University Press.

Wiebesiek, L. (2007). Addressing the 'Standard English' Debate in South Africa: the case of South African Indian English. Unpublished Masters thesis: University of KwaZulu Natal.

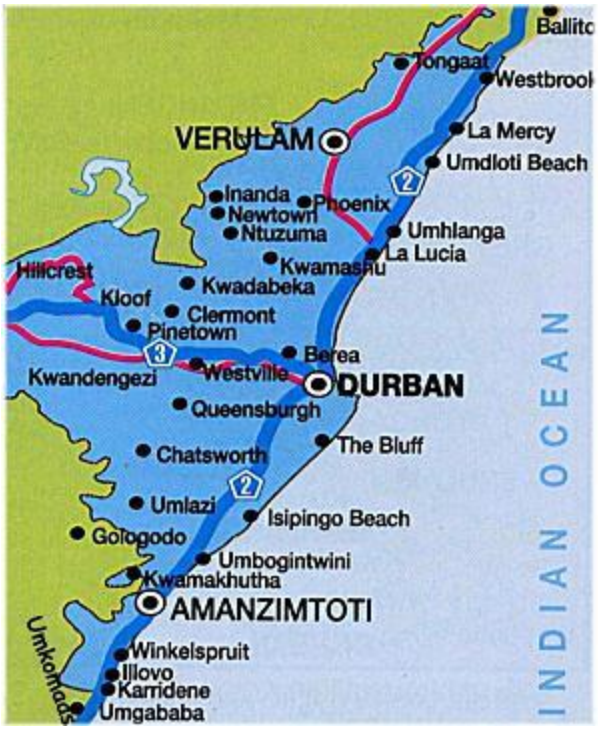
Wissing, D. (2002). Black South African English: a new English? Observations from a phonetic viewpoint. *World Englishes, 21*, 129-144.

Wood, T. (1987). Perceptions of, and attitudes towards, varieties of English in the Cape Peninsula, with particular reference to the 'Coloured Community'. Unpublished Masters thesis: Rhodes University.

Appendix

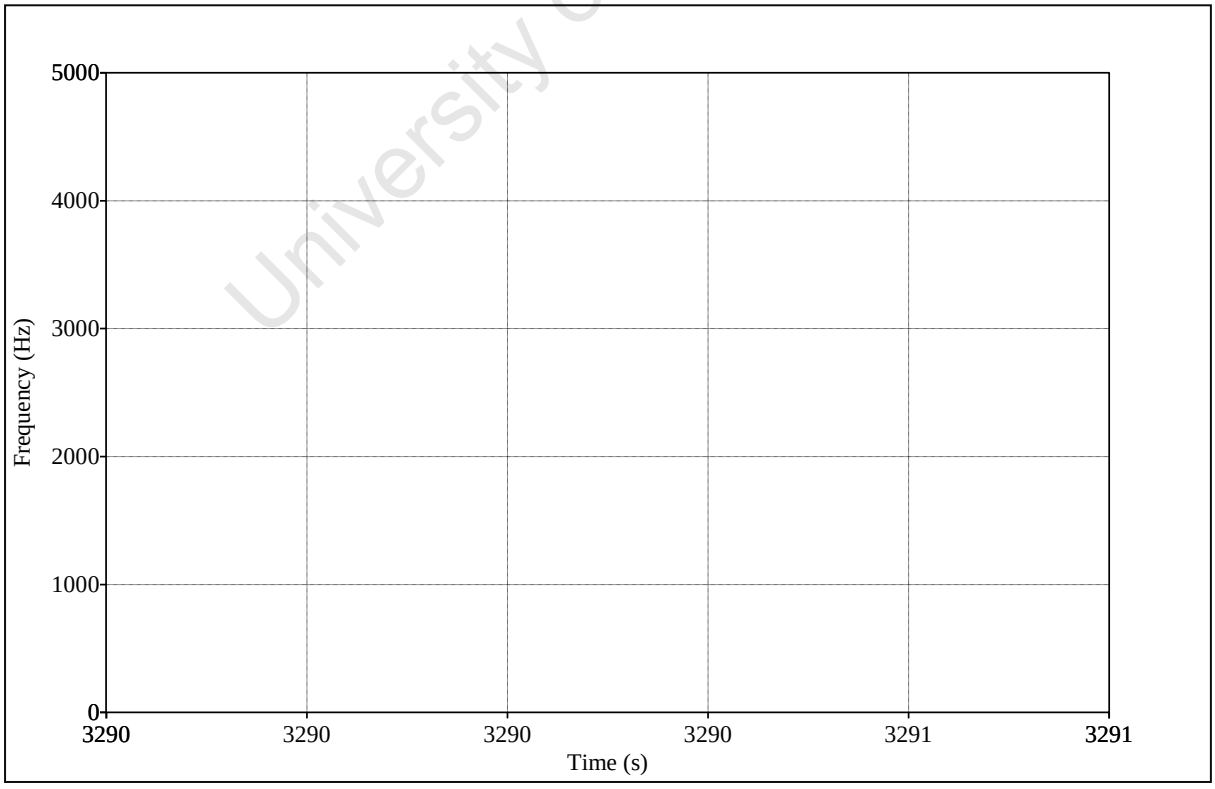
Chapter 2: Section 2.1. Maps of Durban and surrounding areas

©http://www.sa-venues.com/maps/kwazulunatal_durban.htm

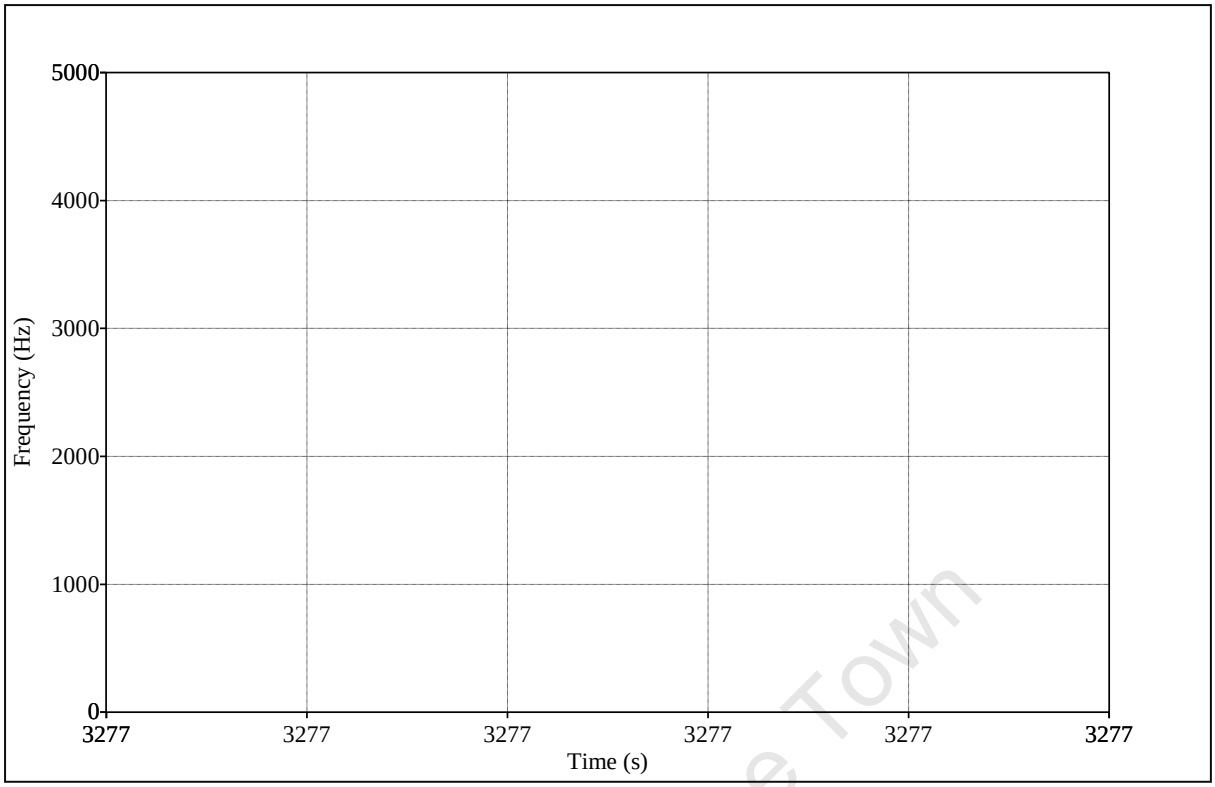


SOURCE: http://www.soccerworldcupafrica.co.za/Cities/durban.html

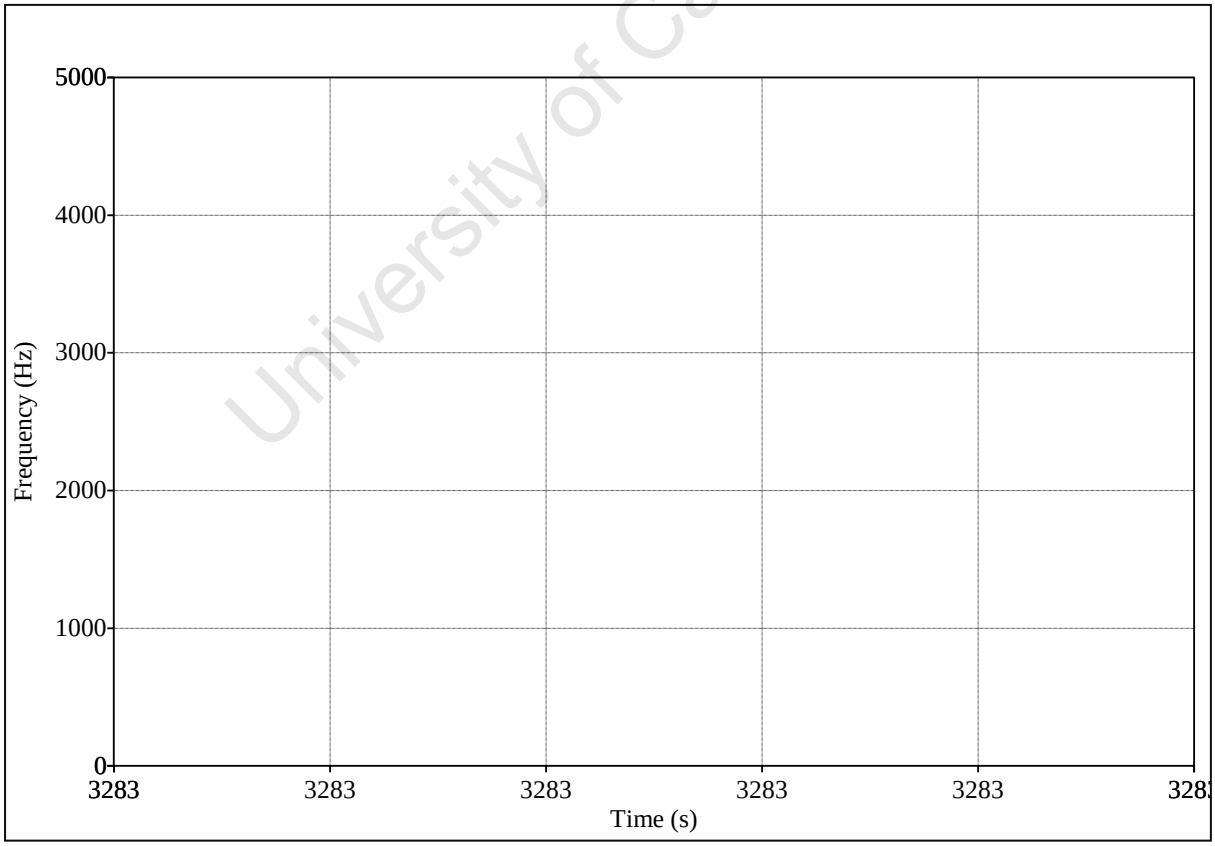
Chapter 2: Section 2.3.



Spectrogram 2: Sarasa's GOOSE



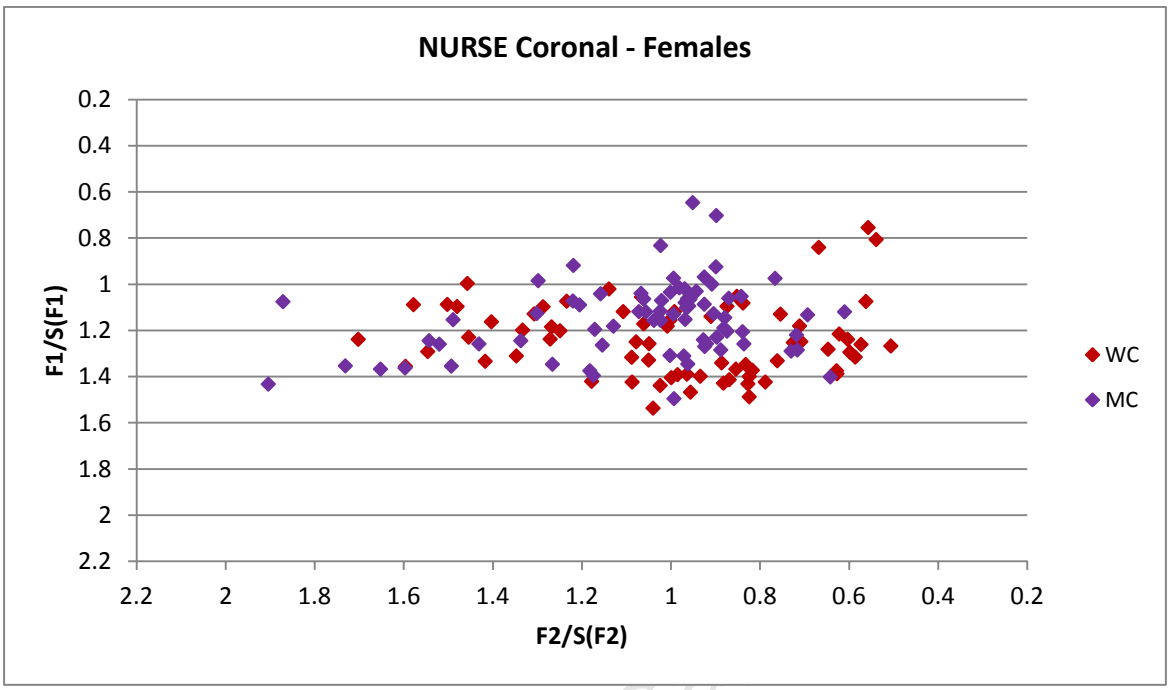
Spectrogram 3: Sarasa's NURSE.



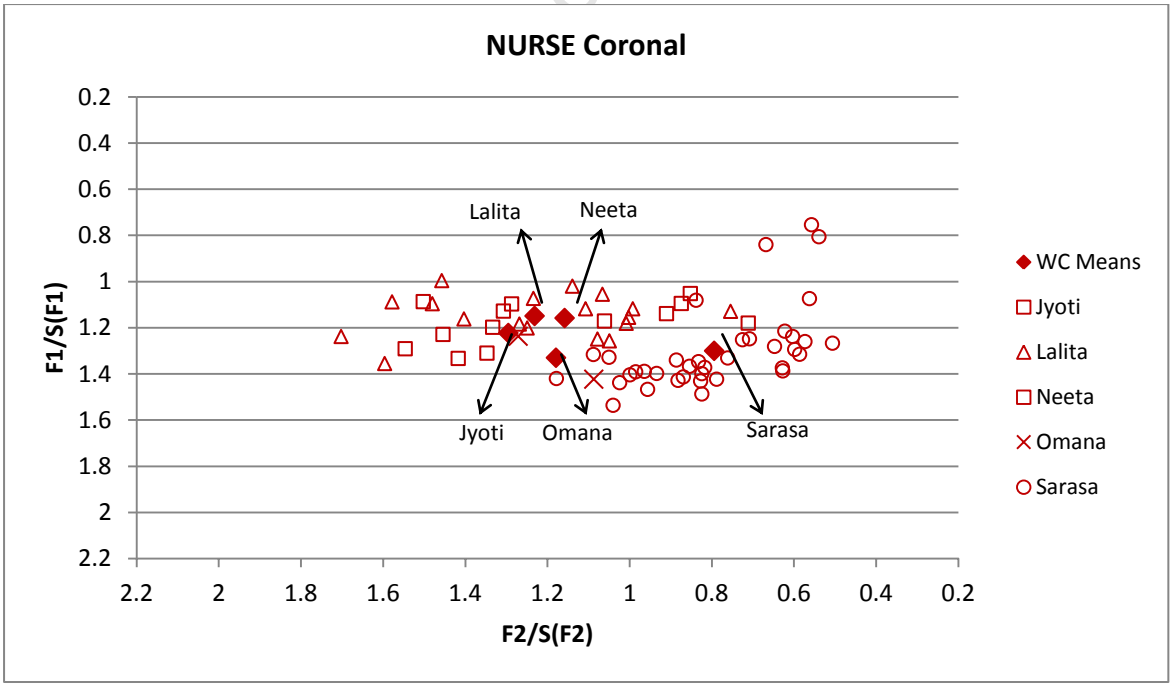
Spectrogram 4: Sarasa's THOUGHT.

Number of prominent tokens					
GOOSE		NURSE		THOUGHT	
school	441	work	121	all	195
do	139	first	99	call	91
you	107	girl	97	more	84
two	104	Durban	76	talk	77
move	65	word	62	thought	49
Zulu	64	were	59	four	43
use	54	person	55	sport	42
university	41	nurse	49	also	38
through	29	term	42	walk	38
group	28	university	41	always	36
who	22	learn	39	before	35
few	17	certain	30	small	34
too	16	her	28	morning	31
choose	15	church	20	ball	30
UK	10	heard	20	born	25
Tuesday	8	worst	19	north	23
cool	8	convert	15	story	19
UCT	7	third	14	law	19
food	7	turn	13	normal	18
pool	7	Joburg	13	your	16
rule	7	turn	13	caught	16
Hindu	6	world	12	course	16
super	5	birth	8	board	15
UKZN	5	bird	5	force	13
truth	5			support	13
junior	4			bought	13
institution	4			fall	12
coolie	3			form	12
tattoo	3			uniform	6
tutor	2			divorce	6
				transport	5

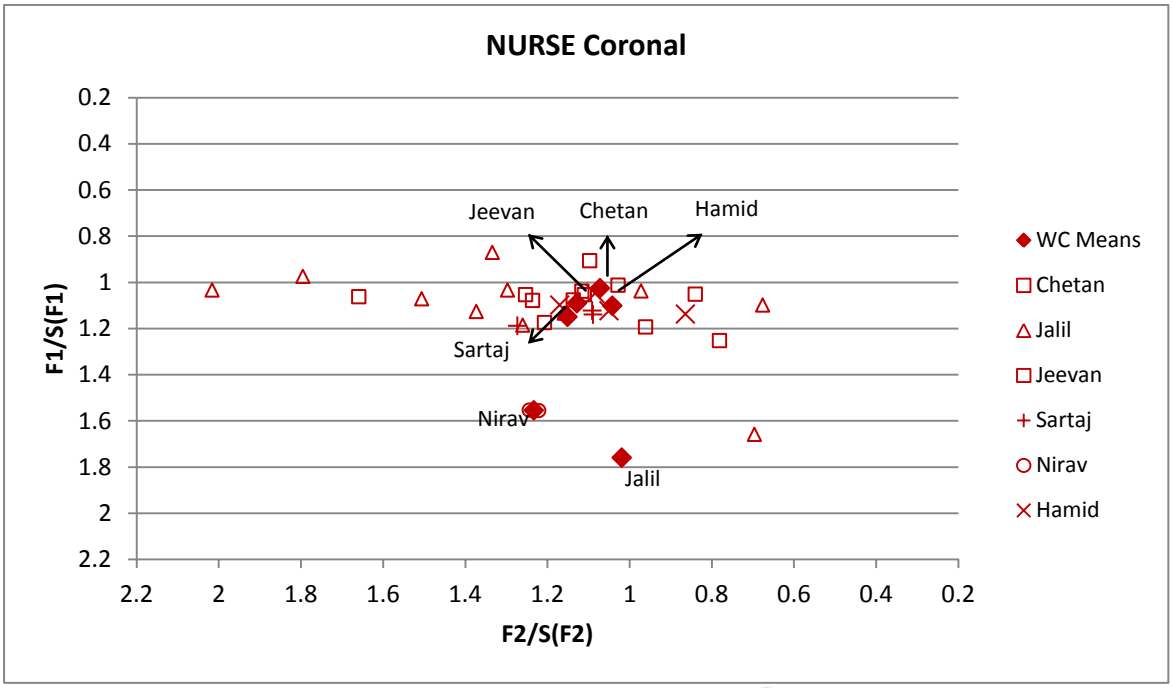
Results: Females



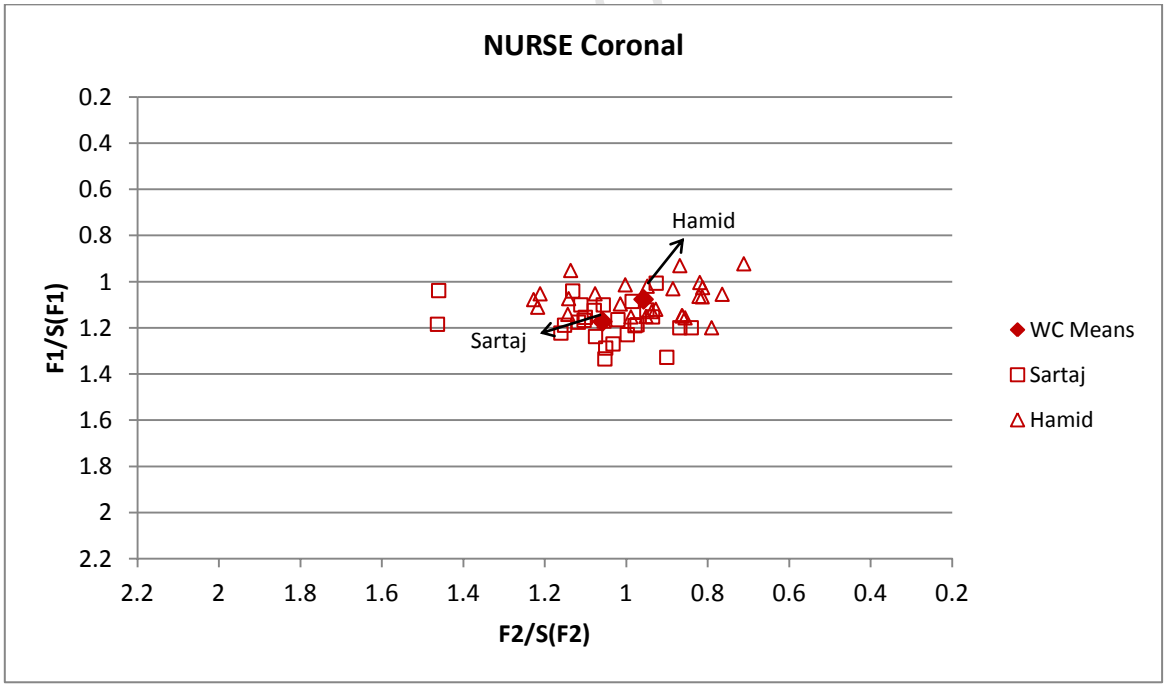
Supplement Graph: Normalised Individual vowels for MC and WC females.



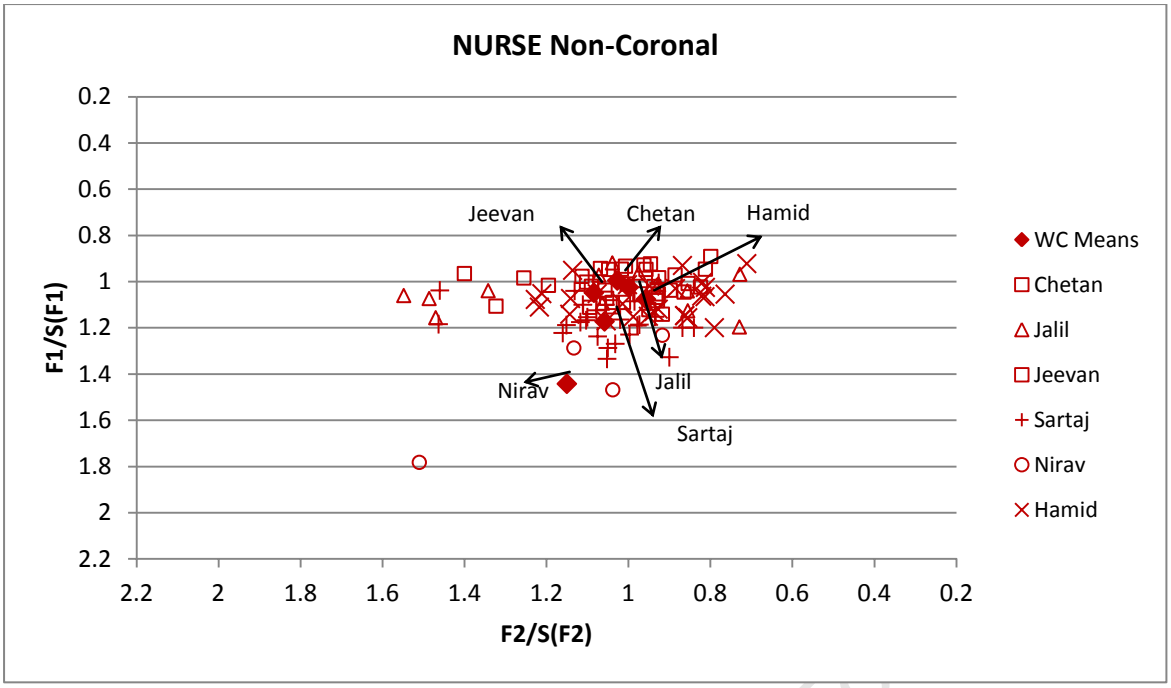
Supplement Graph: Normalised Individual vowels WC females, and the speaker means.



Supplement Graph: Normalised Individual vowels WC males, and the speaker means.



Supplement Graph: Normalised Individual vowels WC males, and the speaker means.

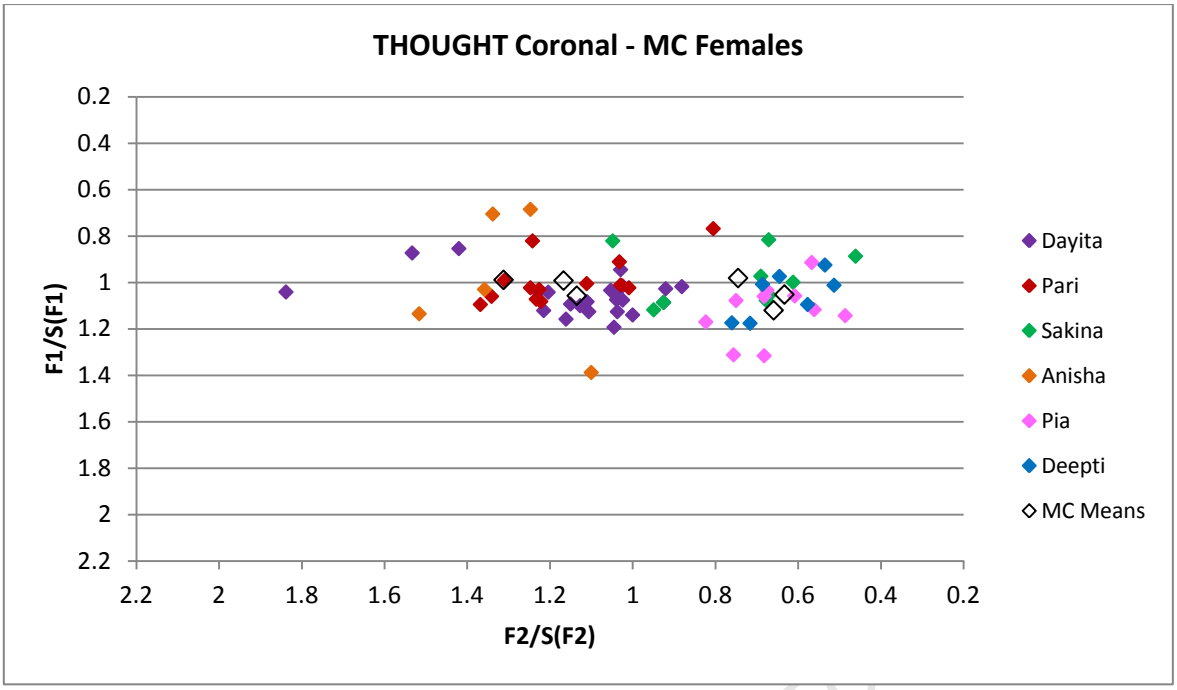


Supplement Graph: Normalised Individual vowels WC males, and the speaker means.

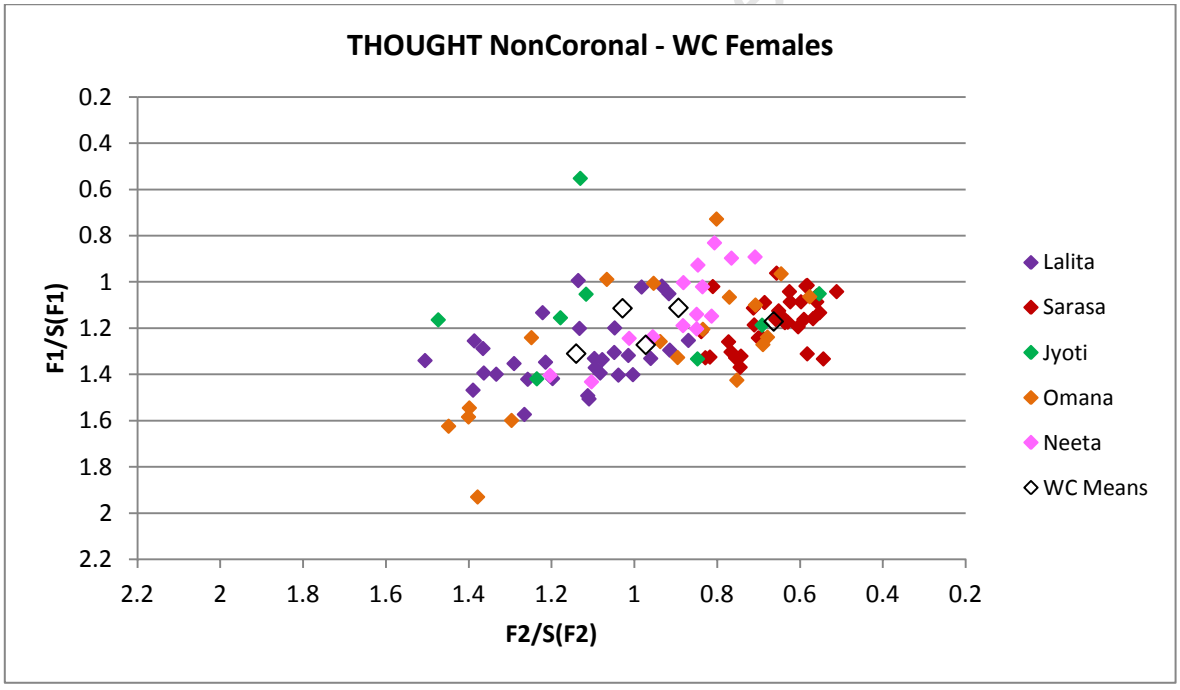
Chapter 4: Section 4.2.

Females	Middle Class	F1	F2		Working Class	F1	F2
	day vs pri	0.028822608	0.308005368		lal vs sar	0.133117015	3.55144E-13
	day vs par	0.081446165	5.83367E-10		lal vs oma	0.230785599	0.003205263
	day vs deep	0.452691796	3.07728E-09		lal vs neet	0.155275719	3.0814E-06
	day vs are	0.318352246	0.031642015		sar vs oma	0.408623812	0.020372181
	day vs sak	0.049162631	5.01291E-05		sar vs neet	0.030386114	3.18085E-10
	pri vs par	0.007826903	5.23026E-09		oma vs neet	0.065617896	0.122608729
	pri vs deep	0.108059002	1.3726E-08				
	pri vs are	0.491440358	0.058219628				
	pri vs sak	0.413972081	2.75448E-05				
	par vs deep	0.112695956	0.300599906				
	par vs are	0.194741408	7.36612E-05				
	par vs sak	0.010672595	0.124108601				
	deep vs are	0.333742711	5.17373E-05				
	deep vs sak	0.103385754	0.073378307				
	are vs sak	0.479889341	5.67465E-05				

Table 8: T-Test Results for Females for THOUGHT Coronal.



Supplement Graph: Normalised Individual vowels MC females, and the speaker means.



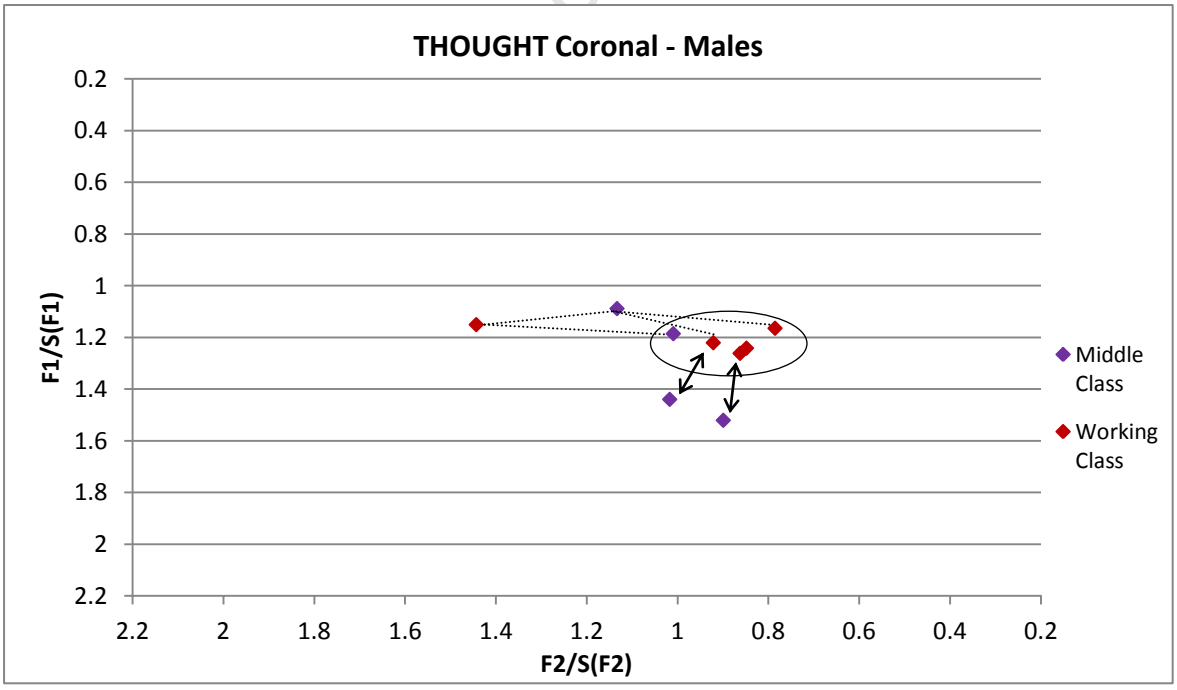
Supplement Graph: Normalised Individual vowels WC females, and the speaker means.

Chapter 4: Section 4.3.

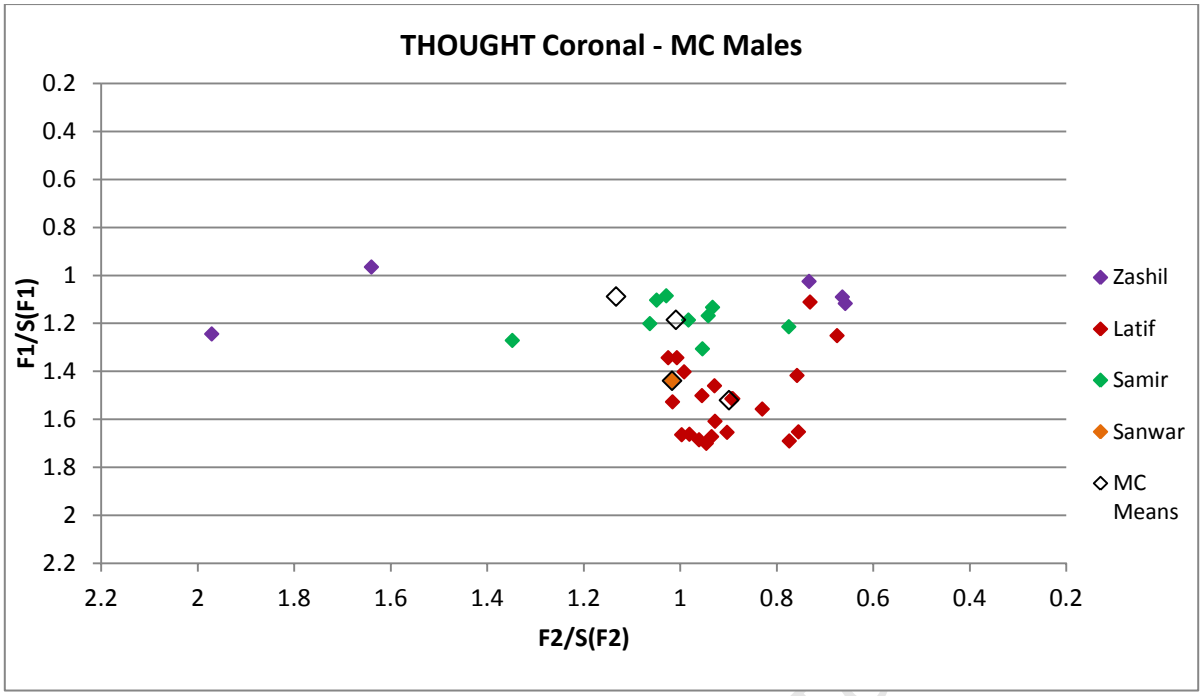
Males	Middle Class	F1	F2		Working Class	F1	F2
	zas vs lat	1.9163E-05	0.225309025		jal vs ham	0.387372442	6.99715E-06
	zas vs sunt	0.053596477	0.3410794		Jal vs jee	0.038418894	9.93849E-09
	zas vs sha	0.000864654	0.349577957		jal vs sar	0.01014603	8.4585E-10
	lat vs sunt	9.16062E-09	0.038119129		jal vs nit	0.170896023	6.33246E-06
	lat vs san	0.016374263	2.30817E-05		ham vs jee	0.105398919	0.191817813
	sunt vs san	3.15876E-06	0.43568708		ham vs sar	0.055774418	0.122802172
					ham vs nit	0.239525672	0.057953408
	lat vs sunt san		0.016018328		jee vs sar	0.36186208	0.389167952
					jee vs nit	0.39028186	0.153044457
					sar vs nit	0.294901716	0.166992059

Table 9: T-Test Results for Males for THOUGHT Coronal.

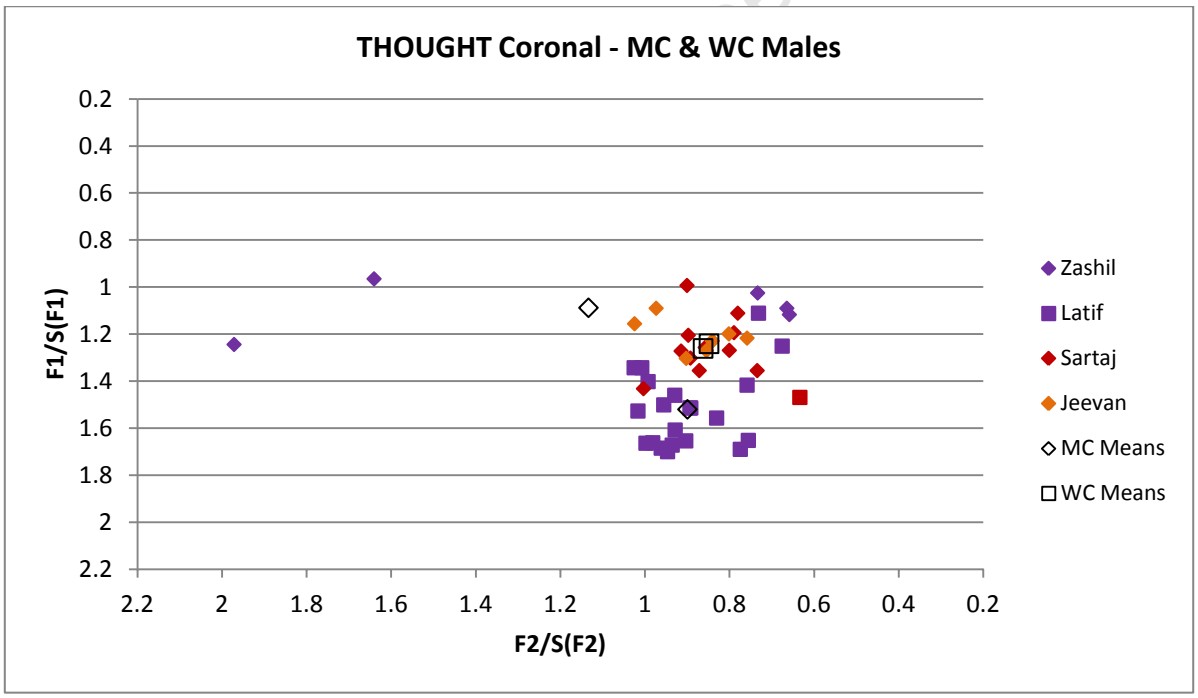
The speakers contained in the circle (on the graph below) show no significant differences in height between them, and overlap with certain MC and WC speakers outside of the circle (dotted lines join them). There is thus a fair amount of inter-class similarity in terms of height for these speakers. Two MC speakers stand alone as significantly lower than all the other speakers. These speakers were producing THOUGHT significantly lower than their MC peers, and compared to the WC speakers (joined with arrows) the results are the same (p=0.123 and p=8.30274E-06).



Supplement graph: Normalised Mean Values for THOUGHT coronal for males per social class, showing class height relations.



Supplement Graph: Normalised Individual vowels MC Males, and the speaker means.



Supplement Graph: Normalised Individual vowels MC and WC Males, and the speaker means.