An acoustic vowel formant analysis of the accuracy of dialect performance in *The Wire.*

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This analysis looks at the F1 & F2 vowel formants in the dialect performances of Idris Elba and Dominic West in *The Wire,* to observe the accuracy of performance and development over time. A review of the current literature established that assessing the first two vowel formants (F1 & F2) of speech is an effective way of describing accent development (Yan et al. 2003: 345), and the software Praat (Boersma & Weenink 2020) was utilised to define F1 and F2 values to develop vowel spaces of 11 American English vowels: /i, ɪ, e, ɛ, æ, ɑ, ɔ, ʌ, o, ʊ, u/ (Clopper et al. 2005: 28). These vowel spaces were produced for two performed Baltimorean accents from British-English actors: Idris Elba and Dominic West, and two natural Baltimorean accents from two Baltimorean natives: Lance Reddick and Lawrence Gilliard Jr. The hypothesis was that there will be an obvious development of the vowel spaces over time towards the Baltimorese accent features. To establish this, the analysis compared the vowel spaces of all four actors, specifically examining the Baltimorese feature of vowel fronting in the GOOSE vowel (Milford 2000: 234) and observing West and Elba from their first and last appearances on the series. The results discovered that Elba was able to produce a steady pattern of change over time that West did not match in relation to vowel fronting, whilst also assimilating towards the Baltimorean actors significantly more than West.

1. Introduction

Dialect is an 'intentional performance of identity' (Bassiouney 2017: 1); this concept of identity is often tailored towards specific socio-cultural situations (Braber 2017: 267). Within the HBO series *The Wire,* dialect is adopted as a crucial element of the series identity and is held as the standard for the actor's ability to portray an 'authentic' Baltimorean persona (Beers Fägersten 2016: 41-2). Knooihuizen (2016: 229) states that an actor's success within their role 'depends' on the convincing 'portrayal of an identity other than their own.' This style of dialect performance is reliant on the social and cultural memory of the audience, assuming that the people watching this performance are aware of sociolinguistic variations in their language (Bell & Gibson 2011). This concept has an intrinsically vital role within the authentically curated series of *The Wire*. However, this representation of authenticity is juxtaposed with two of the critically acclaimed actors on the series being British-English and performing the Baltimorese dialect, these are: Idris Elba and Dominic West.

‘British actors have been increasingly heralded for their ability to adopt credible foreign accents -’ (Holliday 2015: 1). This statement establishes the groundwork for the current analysis as both Elba and West have been continuously congratulated for their dialect performances in *The Wire*, often with American viewers unaware that they were not in fact American (Baltimore Post Examiner 2015). Both actors were born and raised in England and hold Standard Southern British English (SSBE) accents; this directly counters *The Wire*’s creators’ intentions of depicting an ‘authentic’ Baltimore (The Audacity of Despair 2012). However, whilst there is this linguistic discrepancy within *The Wire*, it has been the subject of little analysis (Blayahher & Trotta 2011: 16). Baltimore itself does not see much linguistic representation either; Milford (2000: 232) states that ‘few studies have systematically examined the speech of speakers in Baltimore.’ Similar to *The Wire*’s linguistic predicament, the limited research presents conflicting results, as Baltimore is in the Mid-Atlantic coast which has the most regional variation in dialect within the United States (Wells 1999: 467). Consequently, this analysis looks to rectify these issues.

The current analysis focuses on Idris Elba and Dominic West’s ability to portray an authentic Baltimorese accent. Specifically, the vowel spaces of two performed accents against two non-performed accents of the same dialect. As this research only analyses the pronunciation and not lexical usage, it is thus only concerned with accent (Wells 1982: 5). The current analysis adopted the speech analysis toolkit Praat (Boersma & Weenink 2020) to discern vowel formants F1 and F2 of 11 American English vowels/i, ɪ, e, ɛ, æ, ɑ, ɔ, ʌ, o, ʊ, u/ (Clopper et al. 2005: 28) in order to create vowel charts for a comparative analysis, specifically observing vowel fronting as it is the salient feature of ‘Baltimorese’ (Milford 2000: 234 & Vox 2015). The working hypothesis of the current study is that there will be an obvious development of the vowel spaces over time that will correspond towards their Baltimorese counter parts in the series. Two questions arise from this hypothesis that will be answered:

1. Were Idris Elba and Dominic West able to perform ‘Baltimorese’ as accurately as perceived?

2. Is their evident development and assimilation towards specifically ‘Baltimorese’ phonological features?

2. Literature Review

2.1 Dialect, accent and idiolect

'Dialect' has several broad definitions throughout the scope of sociolinguistics. These definitions are often deemed 'vague' (Bassiouney 2017: 1, Wolfram and Schilling-Estes 2006: 2) and strewn with inconsistencies between them, with Wells (1982: 3) stating that dialects are generally observed as 'more than an idiolect but less than a language.' In non-linguistic environments people often associate dialects with negative affiliations to certain regional variations, i.e. '*that* person speaks a dialect, but I don't', insinuating to speak with a dialect is not desirable (Wolfram and Schilling-Estes 2006: 2) and is to speak 'differently' (Wells 1982: 3). In reality, however, everyone performs a dialect, an idiolect that identifies them to extenuating social, economic and environmental factors; these differences in language are unavoidable. To distinguish a clear and succinct definition of dialect, a convergence of opinions establishes the general definition within this field as: a variety of a language which relates the speaker to a specific regional area on the basis of 'codes' and/or similarities/differences in phonology, morphology, syntax and lexical usage. This also, more often than not in English, is associated with social class (Bassiouney 2017: 1, Hodson 2014: 1-2, Hughes, Trudgill and Watt 2012: 3, Wolfram and Schilling-Estes 2006: 1-2, Wells 1982: 3).

The term 'accent' has a more localised meaning than dialect, it can be defined as simply 'variations' and 'patterns' in the pronunciation of a language (Hughes et al. 2012: 3, Wells 1982: 1); on a more sociolinguistic level it can inform us where a person comes from, grew up and currently resides. From this Wells (1982: 8) establishes that accents are 'powerful indicators of geographical identity'. Beers Fägersten (2016: 46) defines further that to perform a dialect is to 'exhibit an accent' but makes the distinction that someone can have an accent without performing a dialect, as dialects include 'pronunciation, grammar, and vocabulary' whereas accents are defined as variations in pronunciation.' Bassiouney (2017: 1) determines the use of regional dialect as 'an intentional performance of identity.' This links directly to the term idiolect, which is defined as one's own personal dialect, individual to that person and is something every language speaker possesses (Wells 1982: 1). Distinctive from 'the level of the phoneme to the level of discourse' (Oxford Bibliographies 2018). If one has a dialect then a) this can, theoretically, tell us where they come from, but also, b) tell us specific phonological facts about who they are in relation to that dialect. Braber (2016: 231) reiterates this by perpetuating that culturally where we are from is an 'important aspect of our identity', and Lippi-Green (2011: 3) further enhances this statement by insinuating that language is the best way we have of 'establishing and advertising our social identities.' Therefore, identity is

intrinsically linked with the language variety used and our dialects. On a more experimental sociolinguistic level, Preston (1989) determined through perceptual dialectology, that everyone has their own 'mental maps' of language, their own opinions and views of what they and the people around them speak and identify with.

2.2 Dialect performance

'Utterances are ideologically formed' (Bauman 2005: 146); this suggests that our sociocultural environments inform our language and construct an identity from what is dependent on an existing cultural framework. The development of performance as the 'third nexus' to identity and language, Bauman (2000: 1) continues, resulting in identity being an 'emergent construction' by which people perform in a certain manner dependent on the sociocultural situation. In Bauman's seminal work, he traces this development back to the identity test by Gileadites on Ephraimite fugitives; when they fail to pronounce 'Shibboleth' in what they perceived as 'correct' and this variation of speaking induces negative opinions and consequently leads to the Ephraimite fugitives' deaths. This develops a sociocultural act that there are certain ways of speaking related to social hierarchical categories and establishes that the performance of phonological dialectical features can both be intentional and unintentional (Bauman 2000: 1).

In the field work that Johnstone (2009) conducted on the dialect of 'Pittsburghese', performance is intentional; this exhibited from the dialect enregisterment in the social artefacts of Pittsburgh. This develops an argument that these commodities of memorabilia embed culturally dialectical terms that emphasised the city's identity positively and united citizens to form a strong identity around their dialect. As a result, ideological identities are evoked that perpetuate certain lexis, syntax and morphology. These artefacts lead to the creation of an 'idea' of a Pittsburgh dialect, which differs in relation to the Gileadites test of identity, specific ways of inducing an intentional identity. Bell (1992: 328) defined that the framework of referee design can employ this use of 'cultural' framework, where speakers adopt the available resources from their current 'speech community' and orient themselves towards 'real or presumed audiences' (Jaffe 2000: 40).

2.3 Dialect performance in TV, film, stage and music

Dialect is often used to enhance the believability and credibility of a specific sociocultural identity in the performance of professional actors. As Knooihuizen (2016: 229) states, the success of an actor 'depends on the extent to which they can convincingly portray an identity other than their own,' which relies on an existing infrastructure of social meaning (Bell & Gibson 2011: 555). This question of authenticity in film and television is much debated among linguists. From the analysis of accents, Hodson (2014: 60) perpetuates that real-life accents

can never be ‘captured on film’, whereas with the analysis of lexis, Quaglio (2009: 1) discovered an inordinate amount of similarities between the performed talk-in-interaction of the cast of *Friends* and real-life conversation. Additionally, the analysis of syntactic and semantic structures on screen, led Kozloff (2000: 84) to determine that repetition is an uncontrollable factor of ordinary conversation but is used more as an aesthetic feature on screen. To further enhance these findings Braber (2017: 265, 266) illustrated the effects of how language can be utilised to ‘perform particular identities’, which positively correlated with the hypothesis that not only can certain linguistic features be used to perform a plethora of social identities, but a great deal reflects those used in day to day life. Blayahher and Trotta (2011: 19) in an observation study of grammar and lexis discerned that the level of African American Vernacular English (AAVE) presented in the TV show *The Wire* correlated significantly to the grammar and lexis employed in real life. Successfully performing another dialect requires actors’ to have acquired the dialect on some level, thus adopting an identity alongside their own (Knooihuizen 2016: 229). This theory means that the concept of identity has a more fluid meaning than cultural perception assumes.

Hodson (2014: 42) established that despite the substantial amount of interest in the dialects of films, there has been little research in this area and analysis of such has been ‘largely ignored.’ Attempting to rectify this, Hodson sets out a framework for the analysis of dialect in film (Hodson 2014: 42), stating that a reliance on the analysis of dialect to produce the identity of a character can ‘perpetuate negative stereotypes of dialect speakers’ (2014: 57). Kozloff (2000: 82-3) embeds this notion further by implying that the adoption of a recognisably ‘clichéd dialect’ in film can be utilised to prescribe a character’s social, economic, political and ethnic background, with the only way to prevent this being to provide dialect coaching for actors; commenting that a culture of stereotyping is prevalent in Hollywood tradition (Kozloff 2000: 82-3).

Dialect stereotyping can be observed within Meek’s (2006: 96) analysis of Hollywood Injun English, a style utilised to depict Native Americans; draws specific parallels to ‘foreign talk’ or ‘baby talk’ which degrade Native Americans from a dialect and maintain existing negative stereotypes (Meek 2006: 93). The objective of the analysis was to illuminate the performances of ‘indigenous people by a dominant majority’ (Meek 2006: 94, 120), discovering that these grammatical features employed by actors are ‘imagined realities’ and ‘ideological assumptions’ which do not reflect how Native Americans speak. Continuing with misrepresentation in Hollywood, Bucholtz and Lopez (2011) analysed the embedded ideals of Hollywood's representation of blackface minstrelsy (‘exaggerated performance of stereotypical blackness by white actors and singers’ - perpetuating negative stereotypes

(2011: 680)). As they describe it, this is a form of 'mock language' that has seen a resurgence post Civil Rights era in film, mainly to enhance and 'restabilize white middle class masculinity' (Bucholtz and Lopez 2011: 483). They state that their corpus analysis found all the films inherently rely on deauthentication and represent a 'simplified' version of African American Vernacular English (AAVE) for the public to fuel Hollywood's skewed attempts to appeal to a wide audience (Bucholtz and Lopez 2011: 483, 701). To embed the discussion of simplification in AAVE further, they discern that this 'mock' AAVE predictably will only adhere to the basic features: 'deletion or vocalization of postvocalic (r) and, to a lesser extent, (l), fortition of the voiced interdental fricative in word-initial position, and monophthongal (ay)' (Bucholtz and Lopez 2011: 686). Whilst Lippi-Green (2011: 109) states that to imitate an accent is more often than not to stereotype it.

This tradition has been in productions as early as the 1790's, as Wheeler (2017) found in their analysis of theatre productions embedding white actors performing West Indian pidgin for comedic effect. Wheeler (2017: 79,80) discovered that this representation was not only degrading, but that contextually it developed a 'genericide' that characters of colour 'overwrote' the representation of other minorities in Britain on stage (Native Americans, East Indian and South Pacific characters). These studies adhere to an inherent tradition within Western society of stereotyping dialects on screen, with many foreign accents seen as 'interchangeable' within film (Kozloff 2011: 80). This links directly to Halonen and Pietikäinen (2017: 507, 508, 516) who also discovered this inequality in their socio-phonetic analysis which examines an on-screen portrayal of the indigenous Sami community from Lapland. Their study exhibits the adoption of hyperbolic aspiration by Finnish actors whilst imitating the Sami and exacerbating this feature for comedic effect. In Finland and Lapland, this is seen as perpetuating negative stereotypes about the Sami and their culture, and they discovered that dialects in performed ethnic humour often 'poke fun at the stereotypes' affiliated with specific socially recognised identities (Halonen and Pietikäinen 2017: 507). Severin Roald (2013: 8) established that as this topic is 'emotionally charged', to perform an analysis of such requires 'finesse' to stay within 'socially accepted boundaries.'

Beal (2009) carried out research on Alex Turner from the Arctic Monkeys and his use of 'natural' regional dialect features within his vocal performances. Turner intentionally heightened his working-class Sheffield dialect to deliberately disassociate with the norm of the pop music identity of a transatlantic accent (Beal 2009: 224). Beinhoff (2013: 1) reiterates this point, with the idea that people exhibit 'regional accents' to exaggerate their 'regional identity.' Flanagan (2019: 83, 91, 95) later demonstrated the shift from this Yorkshire accent that Alex Turner adopted in the band's younger years to a more transatlantic accent in recent years,

featuring less phonological features of his original dialect. Flanagan (2019: 95) states that the most obvious example of this is the TRAP/BATH vowel, that has moved 'gradually and steadily' away from the northern English /a/, which is recognised in all tokens from the first two albums, to a 17% decline in the latest albums released when Turner was in the USA. Konert-Panek (2017: 382) discovered similar results with Adele, who overshot the same TRAP/BATH vowel in her later albums where the F2 is significantly higher than in her earlier albums, which is a direct result of Americanisation (2017: 371).

2.4 The Wire

The Wire aired between 2002 and 2008 on the American television network HBO spanning five seasons. Set in the 'gritty' streets of Baltimore, it presents a complex and diverse narrative of story lines and characters (Beers Fägersten 2016: 41, Severin Roald 2013: 1). The series was created by two local Baltimoreans: David Simon, a former journalist for the Baltimore Sun working in the police section and Ed Burns, a previous Baltimore police officer. Both creators drew on their knowledge of Baltimore to produce what they deemed an authentic narrative, even basing some characters on people they knew (Medium 2018); striving to reinvent the stereotypical police investigation TV genre and generate an authentic view of Baltimore (The Audacity of Despair 2012).

Simon states that *The Wire* was created to 'stir actual shit' and get people thinking about what the country had become. Simon further reiterated that although *The Wire* is fictional, the problems displayed are 'an actual dynamic in places like West Baltimore, where people are marginalised or destroyed as systemic function' (The Audacity of Despair 2012). This need for authenticity is reflected in the network choice of HBO, whose slogan at the time of *The Wire* release was 'It's not TV, its HBO', implying the authentic nature of their television programs (Beers Fägersten 2016: 41). However, this is countered by two of the leading actors who are not from Baltimore, or even the U.S, and are performing Baltimorese dialects throughout the series which could question this authenticity. These actors are both British-English and play the characters of:

1. Russell "Stringer" Bell (performed by Idris Elba): an African American member of the drug operation in Baltimore, only present in thirty-seven episodes out of 60 (seasons 1-3). He presents a complex character who is attempting to become a legitimate business man and escape the drug trade (Severin Roald 2013: 31).
2. Detective Jimmy McNulty (performed by Dominic West): a Caucasian police officer who is a detective on the war on drugs throughout the five seasons. He also presents a complex moral persona of being a driven detective but with a self-destructive personal life (HBO *The Wire: cast and crew* 2019).

Linguistic analyses on *The Wire* mainly focus on AAVE; this may be because of the too often stereotyped dialect features that are presented on screen of people of colour and the negative connotations these perpetuate (see; Bucholtz and Lopez 2011, Meek 2009 and Wheeler 2017). *The Wire* has established itself as not only portraying AAVE but presenting it accurately. Blayahher and Trotta (2011: 19) discovered an accurate portrayal of AAVE regarding grammar and lexis is consistently present, while Severin Roald (2013) determined, through an in-depth analysis of code switching in *The Wire* that Stringer's AAVE was consistent throughout. Meanwhile McNulty portrays a distinctly SE Baltimore dialect, although it has also been discerned that white working-class characters often adhered to features of AAVE intermittently (Blayahher and Trotta 2011: 18).

The choice of two foreign actors in lead roles has not turned critics against the authentic nature the series proposes it has. *The Wire* became critically acclaimed and praised for this notion in fact (Baltimore Post Examiner 2015, dialect blog 2011, Refinery29 2014, York.ac.uk 2014, Screen Rant 2017, Vulture 2015, Wired 2016). West and Elba have been congratulated by numerous media outlets for their 'authentic' Baltimorese dialects, with many Americans admitting that they thought West and Elba were indeed from America (Baltimore Post Examiner 2015, dialect blog 2011). Wired (2016) states that Elba's accents are 'the best in the business' whilst dialect blog (2011) maintains that *The Wire* is the best form of dialect work they've ever witnessed on screen. Dialect coach Andrew Jack continues this praise by reiterating that *The Wire* is a 'testament to the effectiveness of current coaching techniques' (The University of York 2014).

In his first audition Elba admits that no one was aware that he was English from fear of not being allowed to audition, and he succeeded in deceiving the casting team (Complex 2019). The dialect coach of both Elba and West during *The Wire* said that Elba had the ability to 'hear a sound and then produce it' (Baltimore Post Examiner 2015); this ability seems to have resulted in a higher acclaim towards Elba's accent rather than West's. dialect blog (2011) had 'minor quibbles' with West's accent within the first season; reflected in West's statement that performing the accent 'never got easier' for him (GQ 2018). In an interview with The Guardian (2008), West recounts that during his audition he performed his 'best DeNiro impression', whereas Simon similarly addresses that West's initial accent was not great, sounding more like a New York DeNiro rather than the specific Baltimore dialect the series perpetuates (GQ 2018).

The controversy and fascination with this series has resulted in appearances in three individual books: Brian (2008) *The Essential HBO Reader*, Beers Fägersten (2016) *Watching TV with a Linguist* and Ethridge (2008) *It's Not TV: Watching HBO in the Post-Television Era,* all provide

full chapters on *The Wire,* with even a number of books dedicated entirely to the program by Rafael Alvarez (2004)*The Wire: Truth be Told* and Jonathon Abrams (2018) *All the Pieces Matter: The Inside Story of the Wire.* While these provide in depth analysis on the characters and the matters of social stratification in the series, they produce little linguistic analysis. Therefore, the current analysis will add to this wealth of research by analysing the authenticity of the language in the series, focusing specifically on accent to determine the authentic nature that has captured viewers and how 'authentic' this really is.

2.5 'Baltimorese'

The city of Baltimore resides in the state of Maryland, USA, located in the Mid-Atlantic region of the east coast. 'Baltimorese' is the distinguished dialect used within Baltimore, the most salient feature of the accent is vowel fronting, specifically with GOOSE, which is the shifting of back vowels to a more forward position in the mouth with mention also to the glottalization of /t/ (Milford 2000: 234, The Washington Post 1996 & Vox 2015).

The most distinctive regional dialect differences in North America occur along the Atlantic coast where Maryland is situated (Wells 1999: 467). Preston (1989: 56) observed within his analysis of non-linguist's perceptions of the U.S. that the 'Maryland, Pennsylvania, Delaware' area was perceived as 'neither North nor South', and comments that this indecisiveness may have led to the 'quasi-academic concept of General American.' GenAm is a lose term, applied to those in U.S who do not have 'a recognisably local accent' which only appears in the 'east or south' (Wells' 1982: 118). Milford (2000: 232) states that 'few studies have systematically examined the speech of speakers in Baltimore' and this could result in an assumption of a non-specific dialect i.e. GenAm. The Washington Post (1996) examined the speech patterns across the U.S, and when arriving at Baltimore it stated that although there are strong recognisable features, they cite linguist Walt Wolfram that 'no comprehensive studies have been done on accent in this area' as justification for the lack of linguistic information supplied.

Of the Mid-Atlantic more broadly, there have been specific linguistic analyses. Bauman (2013: 1) analysed a prevalent vowel tendency in the Mid-Atlantic state, of a preceding /r/ specifically before mid and low front vowels MARY, MERRY and MARRY. The discovery was that, for those who have a distinction between all three vowels, the nucleus of the MARY vowel 'closely corresponds to non-rhotic tense /æ/' (Bauman 2013: 9). Whilst Clopper et al. (2005: 2-3) defined the 'acoustic characteristics of the vowel systems of six regional varieties of American English', which included the Mid-Atlantic region. For each variety, a 'subset' of 11 vowels were utilised: /i, ɪ, e, ɛ, æ, ɑ, ɔ, ʌ, o, ʊ, u/ and five repetitions were completed of each vowel for accuracy of analysis. They discovered within the Mid-Atlantic vowel charts that 'features were less clear' than the other sets, which aligns with this absence of linguistic data on the area.

2.6 Vowel fronting

The fronting of the GOOSE vowel is a salient and distinctly recognisable phonological feature of the Baltimorese accent (Milford 2000: 234). Historically, the conservative RP accent of British English has a 'fully back' GOOSE vowel, according to Wells (1982: 147-8), and he states that is usually a long back vowel with a 'degree of diphthongization […] particularly in free position'. However, recently there has been a shift in this trend, with the fronting of GOOSE and FOOT in SSBE in recent years discovered by Ferragne & Pellegrino (2010: 7), they also stated that it has been notably continuing to centralise and become fronter. The centralising of this vowel frequently occurs after the glide /j/ whilst the glide /l/ often blocks this fronting (Wells 1982: 148). Reaffirming this trend, Strycharczuka & Scobbie's (2017: 329) analysis of the fronting of southern British English high-back vowels GOOSE and FOOT, discovered that /l/ directly blocks the fronting of these two vowels.

3. Methodology

3.1 Overview

The Wire proposes a theme of authenticity that stems from the Baltimorean creators through to the cast members (Beers Fägersten 2016: 41). However, Dominic West and Idris Elba (two regular cast members on the series) are not from Baltimore or even the United States, they are both British-English. This dispels a problematic factor surrounding the series' authentic theme; even if they are deemed as performing convincing accents, they are still not completely authentic (Baltimore Post Examiner 2015, dialect blog 2011, Refinery29 2014, York.ac.uk 2014, Screen Rant 2017, Vulture 2015, Wired 2016). As Hodson (2014: 60) states: real life accents can never be performed on screen. The question is then also raised about what is inherently authentic, in this context the term can be used to define a 'genuine' accent, meaning someone who is from the place where their accent is from, in a sense not a 'copy.'

The data and methodological approach of the current analysis was utilised to observe the similarities and differences these two non-native Baltimorean actors perform and to establish their performed vowel spaces against two native Baltimorean actor's vowel spaces on the series and aiming to compare and observe the most salient Baltimorese feature of vowel fronting (Milford 2000: 234). As there is little academic phonetic and phonological reference on *The Wire* and Baltimore in general, this analysis hopes to provide a level of reference not only for future research on the Baltimore dialect, but also for those developing on the authentic nature of dialects on screen in future research.

3.2 Accents & vowel formants

Wells' (1982: 73-4) states that when analysing accent, the 'simplest kind of difference' is in 'the phonetic realisation of a given phoneme', with vowels depicting the most 'obvious realisational differences.' Yan et al. (2003: 345) reinforce that there are two major differences that characterise accents in speech: a) phonetic differences and b) acoustic differences. In particular, when analysing vowel qualities within speech, the use of formants F1 (vowel height) and F2 (vowel frontness) is adopted (Korkmaz & Boyaci 2018: 1, Yan et al. 2007: 683). The characteristics of formants 'help to investigate the proper articulation' of vowels (Korkmaz et al. 2018: 1), and Almisreb et al. (2016: 280) define formant frequency as 'the acoustic resonance of the human vocal tract […]', with the first two formants establishing the vowel, and it varies across 'genders, age and languages' (Korkmaz et al. 2018: 1).

Elba was born and raised in Hackney, East London (IMDB a 2020), and West was born in Sheffield, Yorkshire, and attended Eton public boarding school which is associated with the affluent upper classes and Received Pronunciation (RP) (IMDB b 2020) (Wells 1982: 10) (British Library 2019). To establish the accuracy of Elba and West's dialect performances they were compared against two native Baltimorean actors. The actors chosen were Lance Reddick and Lawrence Gilliard Jr. Reddick was born and raised in Baltimore, leaving for college at eighteen and Gillard Jr. was born in New York but moved to Baltimore at the age of seven and left Baltimore at a similar age to Reddick (IMDB c 2020, IMDB d 2020). Reddick's character is Cedric Daniels, a Lieutenant for the police force, and Gilliard Jr.'s character is D'Angelo Barksdale who is a part of the drug operation in Baltimore.

In order to analyse vowel formants software is often employed. The present analysis will determine the accuracy of two performed Baltimore accents and two natural accents, establishing development and cross actor comparisons. On review of the current literature, this analysis will utilise the speech software Praat (Boersma & Weenink 2020) in order to determine the F1 and F2 qualities of the Mid-Atlantic vowels, utilised from Clopper et al. (2005) /i, ɪ, e, ɛ, æ, ɑ, ɔ, ʌ, o, ʊ, u/ in Idris Elba, Dominic West, Lawrence Gilliard Jr. and Lance Reddick. From the lack of linguistic research surrounding *The Wire* and Baltimore, this analysis looks to 'fill the gap' and form another layer of depth for other linguists researching dialect performance on screen.

3.3 Data & data collection

The data for the current analysis is the 11 American English vowels Clopper et al. (2005) utilised to establish a Mid-Atlantic vowel space: /i, ɪ, e, ɛ, æ, ɑ, ɔ, ʌ, o, ʊ, u/. These features were chosen as Clopper et al. (2005) presents the most comprehensive description of Mid-

Atlantic vowels, where Baltimore is situated, and as there have been insufficient findings in regard to a Baltimorese vowel space produced in the literature.

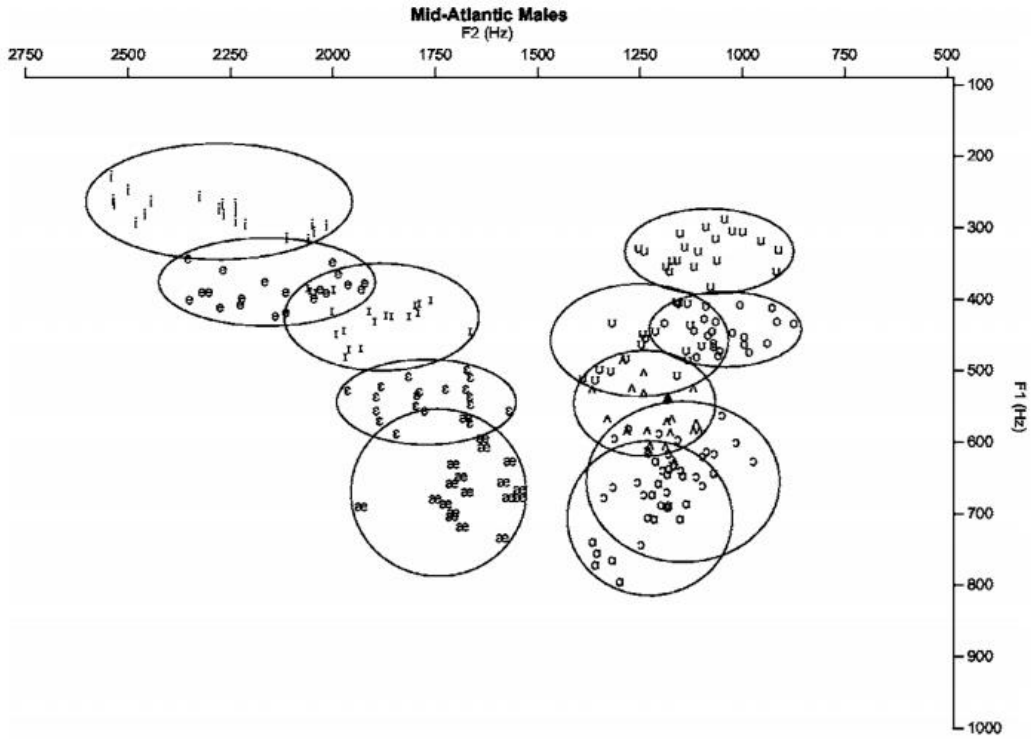


Figure 1 *Clopper et al. (2005: 23) Mid-Atlantic male vowel space of /i, ɪ, e, ɛ, æ, ɑ, ɔ, ʌ, o, ʊ, u/*

These 11 vowels were observed within the four actors to establish the level of accuracy between the performed accents of Idris Elba and Dominic West and the natural accents of Lance Reddick and Lawrence Gilliard Jr, who performed the following characters:

1. Detective Jimmy McNulty performed by Dominic West
2. Russell “Stringer” Bell performed by Idris Elba
3. Lieutenant Cedric Daniels performed by Lance Reddick
4. D’Angelo Barksdale performed by Lawrence Gilliard Jr.

These actors were chosen because they present two distinct groups: 1) two non-native U.S actors: West and Elba who perform ‘Baltimorese’ throughout the series, and 2) two native Baltimorean actors: Reddick and Gilliard, who were chosen specifically to exhibit the contrast of the two non-native actor’s phonetic and phonological performances. Elba and West are

British English actors and are intentionally performing 'Baltimorese' to a sufficient level of believability for the audience, whilst Reddick and Gilliard were chosen because:

a. They both grew up in Baltimore: adolescence is a pivotal time in the developmental stage of language pronunciation, i.e. accent (Levis & Moyer 2014: 15) (Reddick was born there, and Gilliard re-located there with his family at the age of six),

and,

b. They adhere to the two different speech communities in the series. Elba and Gilliard Jr.: drug dealers, West and Reddick: police officers.

As the present analysis is concerned with the ability to perform a specific socio-cultural identity through dialect performance, these participants suit these needs. However, it needs to be noted that while Reddick and Gilliard are from Baltimore, they may not produce an accurate representation of the phonetic and phonological features 100% of the time (Milford 2000: 233).

AAVE is an established part of the series (Blayahher and Trotta 2011: 19) and since Elba, Reddick and Gilliard Jr. are black and West is white, this could be seen as a limitation, as there is strong evidence in support of this AVVE Baltimorese dialect (see; Blayahher & Trotta 2011: 18-9, Rickford et al. 2015: 11817 and Severin Roald 2013: 2). AAVE, whilst historically developed by African Americans, is not exclusive to such (Blayahher et al. 2011: 17), and it is important to state that 'not all African Americans speak AAVE and for many who do, it is a scalar phenomenon.' It is also not exclusively spoken by African Americans and some white Baltimoreans also adopt features (Blayahher et al. 2011: 18). Blayahher et al. (2011: 38) describes the dialect phenomenon present in *The Wire*:

'In the five-year long stretch of 60 episodes, we see how in a city abandoned by the general American public, the dialect is becoming the norm, while the 'norm' is becoming the margin: we see it with politicians and community leaders, we see it with the young white working class and with the black police officers – there is no clear 'wire' that neatly divides them up into AAVE and non-AAVE speakers.'

This describes the 'blurring' between AAVE and non-AAVE within the series. As the focus of this analysis is the acoustic features of speech and not the specific lexicon associated with Baltimore, it seems this choice is appropriate and that this limitation may be confounded for already. Moreover, the cast presents no eligible white U.S Baltimorean actor which adheres to the criteria of a) and b).

When collecting the vowels, each of Clopper et al.'s (2005: 23) 11 Mid-Atlantic set were searched within each actor between 10-30 times (when possible) from the first three to four beginning and ending episodes of each actor; this repetition is required for accuracy of analysis and has been observed within a plethora of vowel formant analyses (see: Boersma 2009, Escudero et al. 2020, Frank et al. 2020, Khan 2014, Ristovska et al. 2018 and Schwartz et al. 2019). Wells' (1982) lexical sets were used to define the vowels and categorise, as the normalisation routine adopted during analysis required each vowel in a lexical set for the program to run, and Bauman (2013: 1) states that describing vowels in these analyses in their International Phonetic Alphabet symbol can be 'largely impressionistic.' Generally, KIT, FLEECE and FACE were the most frequently found vowels from all of the actors and ranged between 30-50; see Table 2 for the number of vowels collected for analysis. Not all vowels could be extracted from every word in each recording due to co-articulatory devices that elide vowels, however self-discretion was adopted to discern which vowel formants were suitable (see: Methodological Approach). Describing vowels within co-articulated speech is a difficult process and can be seen as counterproductive (Knight 2012: 122-3), yet as the series displayed little opportunity to extract a large amount of isolated speech segments from the chosen actors this method could not change. However, measures were taken to determine normalisation and reliability across the vowel recordings:

1. Vowel placement: observed within as many different words with varying vowel placements as possible (Di Paolo & Yaeger-Dror 2011: 88-9, Ladefoged 2003: 103).

2. Approximant reduction: as approximants elide vowels /w j r l/ have been eliminated as best as possible (Di Paolo & Yaeger-Dror 2011: 88-9, Knight 2012: 40). As /l/ blocks GOOSE fronting, it is also eliminated for this reason too (Strycharczuka & Scobbie 2017: 329).

3. Connected speech processes: weak vowel forms occur in connected speech, which makes up the current data, therefore these processes need to be taken into consideration (Knight 2012: 197). By observing on Praat the strength of the F1 & F2 formants.

The software Audacity was employed (Styler (2017: 11) recommends this platform as a useful tool for easy recording and transference to Praat) to internally record segments of speech on a laptop the five seasons of *The Wire*. The specified episodes (see Table 1 below) were played and segments of speech from the corresponding actors were recorded. After each clip was recorded (range from seconds to minutes), they were saved as WAV files individually (WAV

files offer easy transference to Praat (Kaur & Kumar 2016)), and categorised by the actor, season and episode.

All four actors began performing on the series simultaneously. Firstly, speech recordings were collected from each of the four actors from the first four episodes of the first season. The initial choice was the first three episodes, however, they provided insufficient data from all of the actors and the forth episode was included to reach a medium. Repetition of vowels is an important routine to establish reliability among the data (Escudero et al. 2009). As the analysis does not focus on the developmental phonological and phonetic features of Reddick and Gilliard, they required no further recordings. As part of the analysis is a comparison between West and Elba's accent progression, speech was recorded from the last three episodes they appear in the series as well (for Elba this is season 3 and for West this is season 5). Table 1 depicts which episodes were used for collection.

Character	First appearance(s)	Last appearance(s)
Detective “Jimmy” McNulty	S01.E01 “The Target”	S05.E10 “Clarifications”
	S01.E02 “The Detail”	S05.E09 “Late Editions”
	S01.E03 “The Buys”	S05.E10 “-30-“
	S01.E04 “Old Cases”	
Russell “Stringer” Bell	S01.E01 “The Target”	S03.E09 “Slapstick”
	S01.E02 “The Detail”	S03.E10 “Reformation”
	S01.E03 “The Buys”	S03.E11 “Middle Ground”
	S01.E04 “Old Cases”	
Cedric Daniels	S01.E01 “The Target”	N/A
&	S01.E02 “The Detail”	
D’Angelo Barksdale	S01.E03 “The Buys”	
	S01.E04 “Old Cases”	

Table 1 *Episodes utilised in data collection*

Actor	Mid-Atlantic Monophthong Vowels											Total vowels
	/ʊ/	/u/	/e/	/ɛ/	/ʌ/	/æ/	/i/	/ɪ/	/ɔ/	/ɑ/	/o/	
Elba S1	2	11	18	12	22	21	10	22	9	4	21	152
Elba S3	9	12	33	17	48	22	33	38	20	19	23	274
West S1	9	15	36	24	39	20	28	47	28	20	23	289
West S5	7	10	20	20	23	21	20	20	20	20	23	204
Gilliard	9	11	41	20	33	24	20	32	20	14	25	249
Reddick	6	14	20	22	20	27	29	20	21	19	20	218
												1,386

Table 2 *No. of vowels*

3.4 Methodological approach: Praat acoustic formant analysis

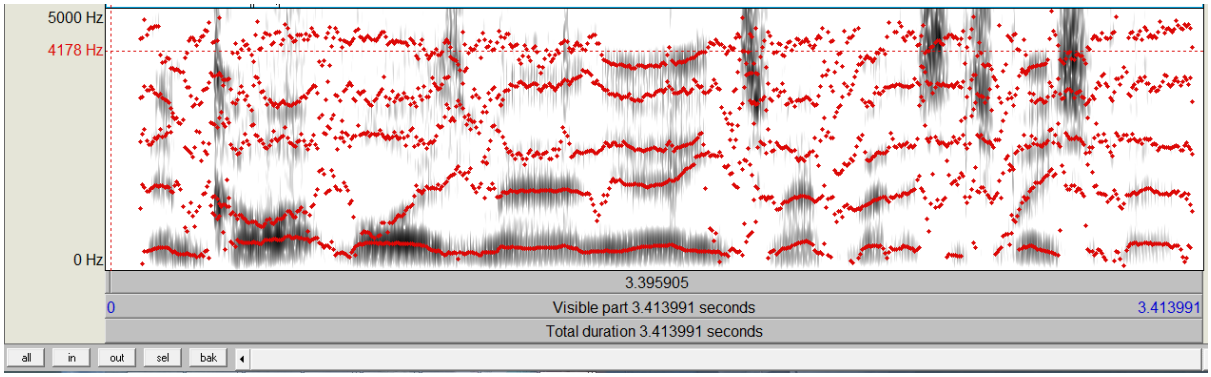
The current research adopted an acoustic sociophonetic approach to the analysis. Phonetic analysis 'often shows that certain sets of speech sounds, which at first seem to be identical, are in fact different' (Wells' 1982: 41). Acoustic phonetics is concerned with how speech sounds are transmitted (Harrington 2013: 81) and can capture the minute decisions in speech that are difficult to 'capture by ear alone' (Knight 2012: 221). More specifically, this analysis is concerned with sociophonetics, which is defined by Foulkes, Scobbie & Watt (2010: 704):

'[…] the unifying theme of sociophonetic work is the aim of identifying, and ultimately explaining, the sources, loci, parameters, and communicative functions of socially structured variation in speech.'

Di Paolo & Yaeger-Dror (2011: 87) comment further that analysing the vowel system in a sociolinguistic light is able to show that 'vowel variation generally occurs below the level of conscious awareness', which is able to give evidence of the 'social-psychological' determiners on these sound changes.

To acoustically analyse the data, the speech analysis toolkit Praat was employed (Boersma & Weenink 2020). This is an established computer program of 'analysing, synthesizing and manipulating speech' (Boersma 2013: 1). Praat administers a demonstrated history of reliability and suitability of performing acoustic vowel analyses of the same strength as the current analysis (see; Almisreb et al. 2016, Escuedero et al. 2009, Kaur & Kumar 2016, Konert-Panek 2017 and Ristovska et al. 2018). The latest version: 6.1.09 updated on 26th January 2020 was utilised for the current purposes.

All WAV files were inserted into Praat, adopting the toolkit to produce spectrograms of each recording. Boersma & van Heuven (2001: 341) state that the use of a spectrogram is to be able to 'look inside the sound'; it is a representation of the low, middle and high frequencies of the speech signal (Ristovska et al. 2018: 42). The present analysis focused on the formant



contours which are the dominant areas of the spectrogram (see Fig. 2 below). Formants represent the acoustic properties of vowels and are the distinguishable darker lines on a

Figure 2 *Example of a spectrogram taken from current analysis*

spectrogram, the 'acoustic landmarks that distinguish vowel quality' (Boersma 2013: 19). For the current analysis only, formant one (F1: tongue height) and formant two (F2: tongue frontness) were adopted, as Ladefoged (2003: 105) states that vowels can be 'mostly' characterised by F1 and F2. These two formants are suitable to define vowel qualities overall for the present analysis (see: Almisreb et al. 2016, Escuedero et al. 2009, Kaur & Kumar 2016, Konert-Panek 2017 and Ristovska et al. 2018)

For the formant frequency ceiling (the height of the frequency in the spectrogram), 5000 - 6000 Hertz has been discovered as appropriate for males as this reflects 'the average vocal length tract for men' (see; Boersma 2013: 16, Escudero et al. 2009: 1381, Ladefoged 2003: 105 and Styler 2017: 15). This analysis found that 5000 Hertz was an appropriate frequency ceiling for the current data as the formants were clearly visible and represented (see Figure 2 below).

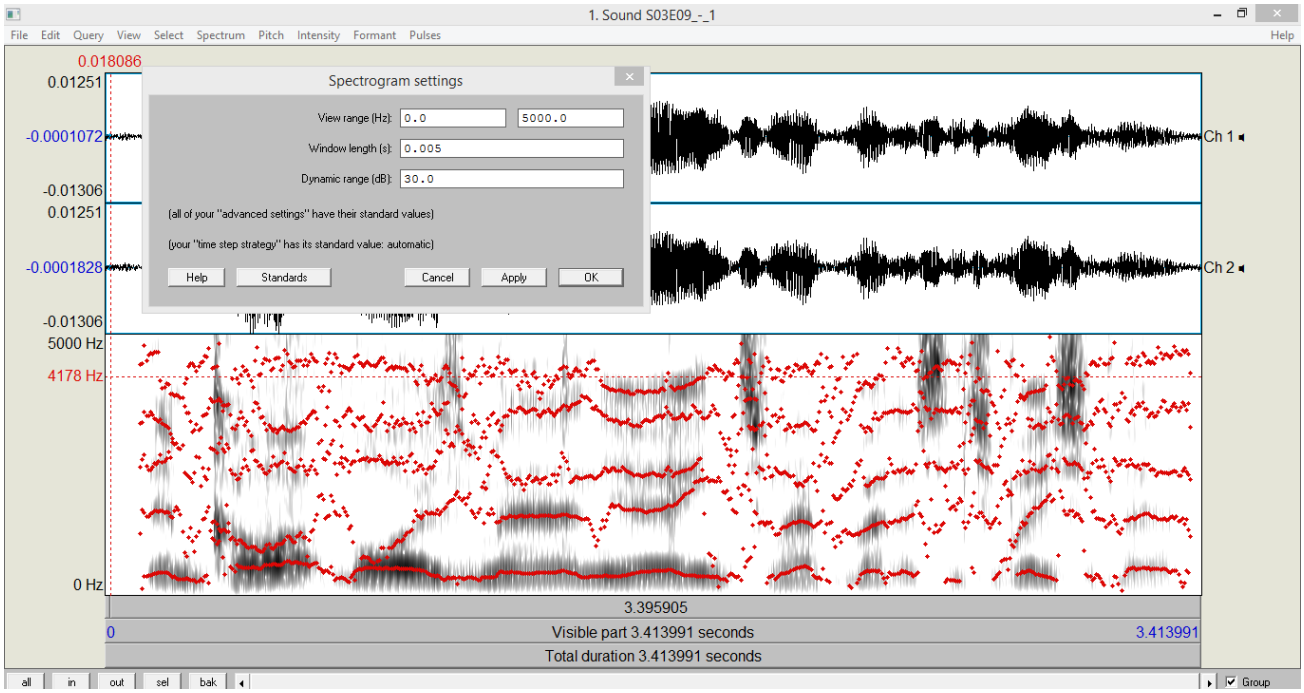


Figure 3 *Example of frequency ceiling in correlation to visibility of spectrogram*

To record the F1 and F2 frequencies from the recordings, the vowels needed to be at steady state where both F1 and F2 were stable and avoiding the surrounding phonemes as best as possible (Escuerdo et al. 2009: 1381). For this to occur, the formants were extracted from the middle of the vowels, with an attempt made as best as possible to avoid the surrounding phonemes. To extract the formant, the cursor was dragged over the centre of the vowel (see

Figure 3 below), then clicking on query, Log 2 which produces the start and end time of the vowel and the first three formants (see Figure 4 below). The formants were rounded to the nearest hertz.

The formants were then inserted into a template in excel provided by Thomas & Kendall (2007), for the use of their normalisation program (See Figure 4 below). This template included the speaker, the first two formants and the context of the word and enabled easy transference to the program. Wells' (1982) lexical sets were used to categorise the vowels as the template required word formation instead of IPA symbols. Normalising vowels is essential before plotting vowel spaces to confound for the variable of differing physiological features of the mouth. Di Paolo & Yaeger-Dror (2011: 89) state in sociophonetic analyses the vowels must be normalised when comparing speakers to 'determine the influence of demographic factors on variation.' If not normalised it can cause the frequencies to differ and thus produce unreliable and unusable vowel space comparisons (NORM a 2015). Flynn et al. (2011: 1) states that normalising establishes an 'accurate cross speaker' comparison, which is essential for the current analysis. To process the data in Thomas & Kendall's NORM program, the method of normalisation was Nearey1. The formula for Nearey1 is

$$F^{*}_{n[V]} = \text{anti-log}(\log(F_{n[V]}) - \text{mean}(\log(F_n))$$

'Where $F^{*}_{n[V]}$ is the normalized value for $F_{n[V]}$, formant *n* of vowel *V*, and mean(log(F_n)) is the log-mean of all F_ns for the speaker in question' (NORM b 2015). The vowels were scaled to depict the accurate F1 and F2 frequencies heights.

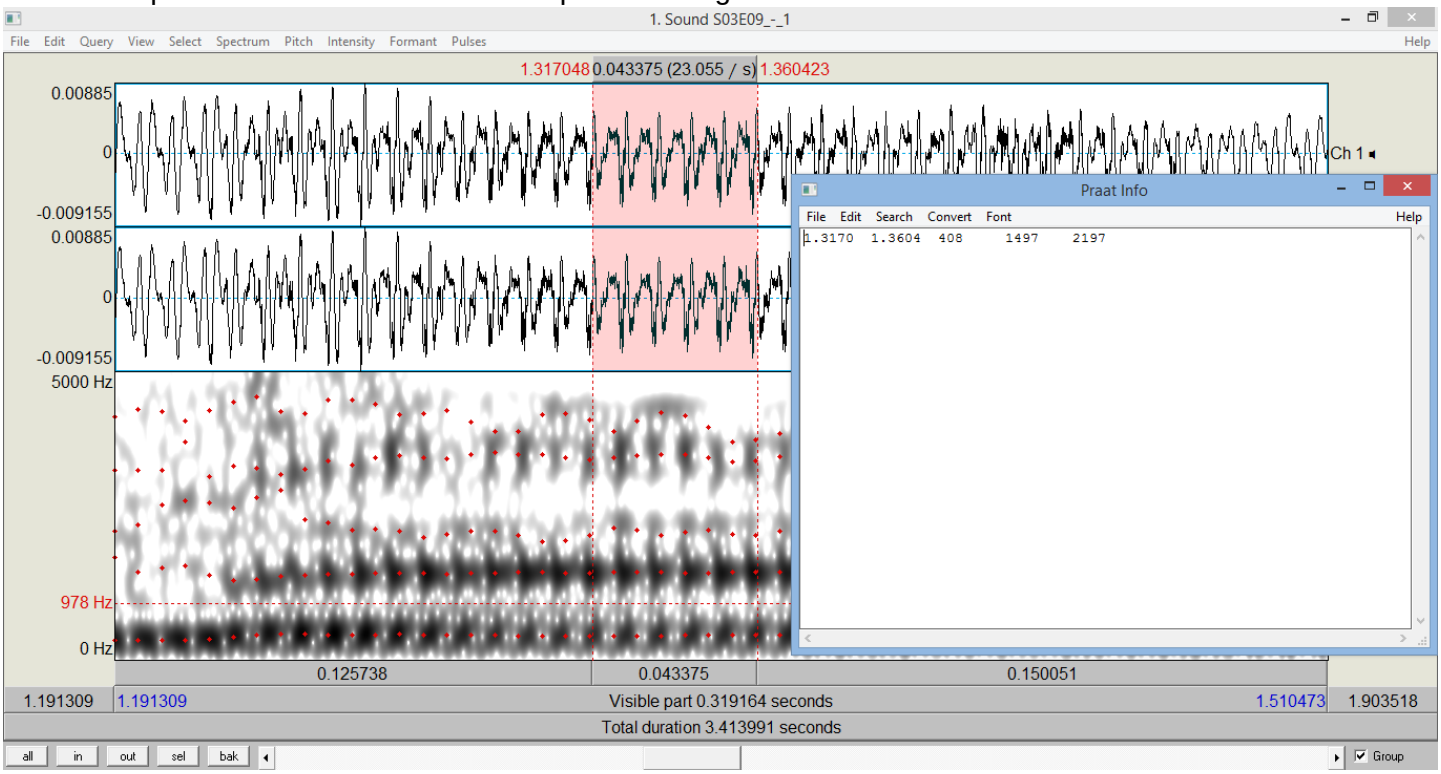


Figure 4 *Example of a steady state formant and the retrieval of F1 & F2, depicting the vowel TRAP in the word /maen/*

B15 GOOSE

	A	B	C	D	E
1	speaker	vowel/frame	context	F1	F2
2	Elba	FOOT	- thirty (Five)	434	1821
3	Elba	FOOT	(i) could've (bought)	383	1629
4	Elba	FOOT	(fucked) tonight (man)	447	1757
5	Elba	FOOT	(that) motherfucking (politician)	868	2787
6	Elba	FOOT	(can) put (him)	418	1277
7	Elba	FOOT	(to) put (on)	413	2657
8	Elba	FOOT	(they) took (a)	336	2408
9	Elba	FOOT	(names) could (ring)	387	2226
10	Elba	FOOT	(you) took (now)	520	1080
11	Elba	GOOSE	(or) two (man)	297	2641
12	Elba	GOOSE	(fucking) shooting (dope)	318	2437
13	Elba	GOOSE	(you) good -	456	1515
14	Elba	GOOSE	- hook (me)	366	1998
15	Elba	GOOSE	(lotta) new (faces)	391	2501

Figure 5 *The NORM template, Idris Elba S3 data*

Vowel spaces were established from the normalised frequency lists for each actor, of F1 on the vertical axis and F2 on the horizontal axis. Displaying it as such replicates a vowel chart, which was designed to reproduce the oral fixture of the mouth to establish where vowels are produced in the mouth (Knight 2012: 69-70). The normalised vowel charts produced from the NORM program after F1 and F2 normalisation were utilised within the current analysis. This analysis observed the vowel movement within the mouth, describing the vowels in terms of high, low and front, back vowels, in order to determine the variation in vowel production.

The feature that will be the focus of analysis is vowel fronting, as it is discerned as a main characteristic of 'Baltimorese' phonology, specifically with the GOOSE and FOOT vowels. There are also pre-existing American English tendencies with vowels: the PALM/THOUGHT merger, however Clopper et al. (2005: 10) found that this merger was not significantly prevalent within their Mid-Atlantic data, therefore will only be commented on when observed within the current data.

4. Analysis

The analysis compared the vowel formants F1 & F2 within the dialect performances of Idris Elba, Dominic West, Lance Reddick and Lawrence Gilliard Jr. This was to a) observe the development of Elba and West's performances over time and see whether they depict any noticeable differences in their performed dialects, and b) to compare against their Baltimorean (Reddick and Gilliard Jr.) actor counter parts to observe whether they adhere to similar vowel formant patterns as they do. The analysis is set out in three parts:

1. **Idris Elba and Dominic West.** Elba and West were compared together and separately from their first appearances on the series to their last, to observe any differences and developments between them.

2. **Cross actor comparison.** A comparison of Elba in S1 and S3 with Gilliard Jr. and a comparison of West in S1 and S5 with Reddick. This was to observe whether Elba and West adhere to specific 'Baltimorese' features and how their spaces compared from start to finish with Reddick and Gilliard Jr.

3. **Overall development.** A general comparison of all four actors vowel spaces in S1 and then all four vowel spaces with Elba and West's development.

This analysis will focus mainly on vowel fronting and specifically the GOOSE vowel, as this has been stated as a salient, recognisable feature of Baltimorese (Milford 2000: 234). There will be comparison to Clopper et al.'s (2005: 23) Mid-Atlantic vowel chart, which is the closest approximation of a Baltimorese vowel chart discovered in the literature.

4.1 Idris Elba & Dominic West: start to finish

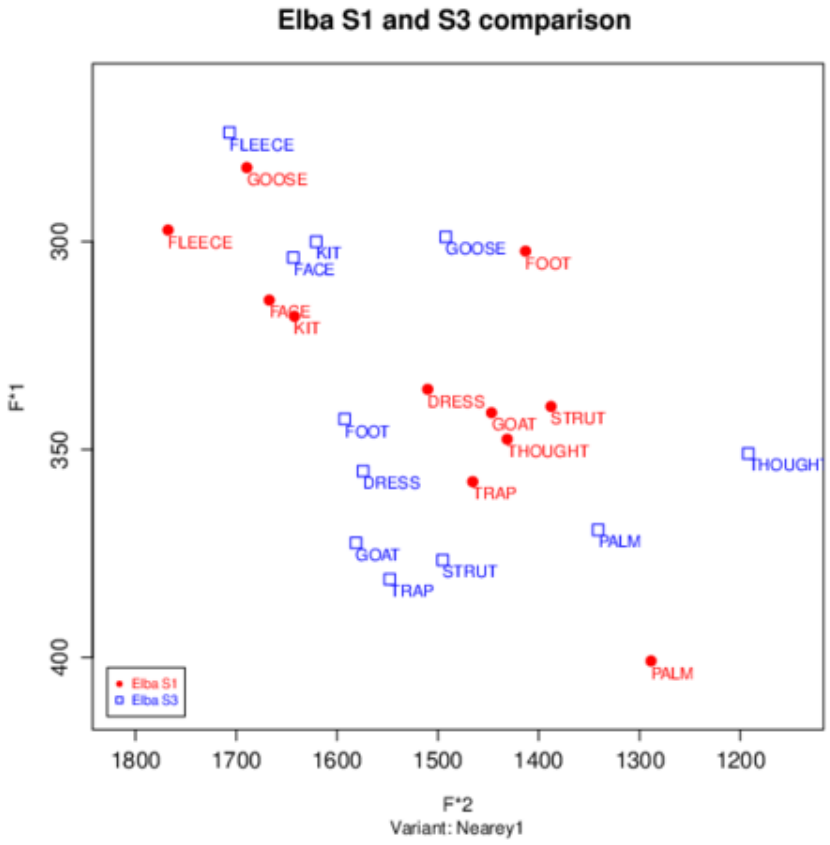


Figure 6 *Idris Elba S1 and S3 comparison vowel space*

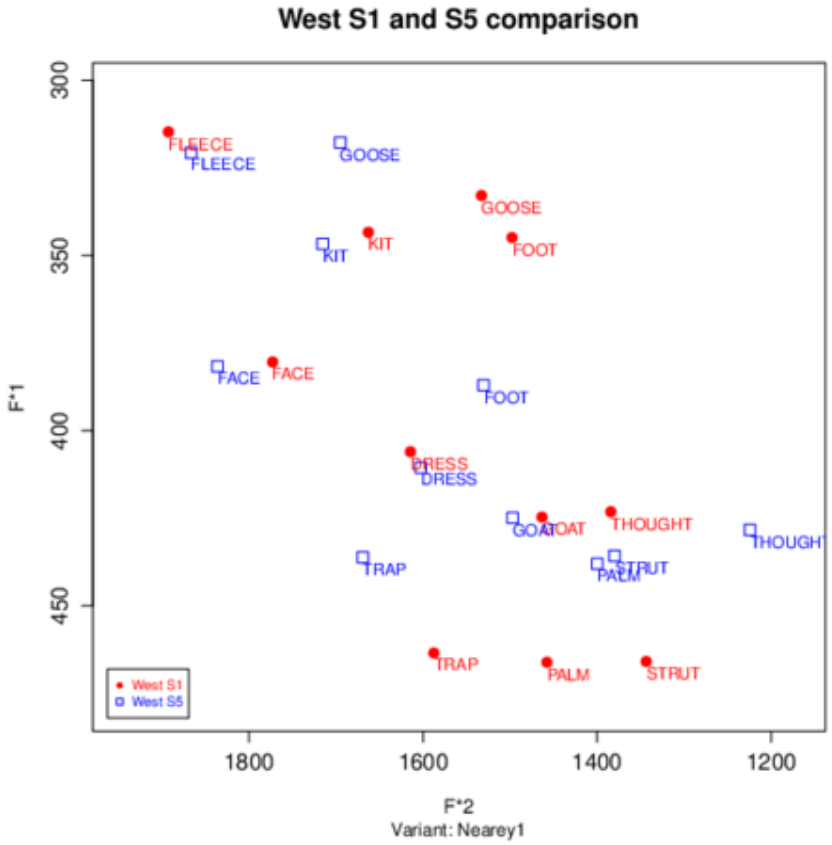


Figure 7 *Dominic West S1 and S5 comparison vowel space*

Fig.'s 6 and 7 depict Elba and West's development from their first appearances on the series to their last. Both actors display contrasting movements with their GOOSE vowels and other high, front vowels such as FLEECE, KIT and FACE. Firstly, in Fig. 7 West supports the vowel fronting hypothesis and the GOOSE vowel moves from a high, central vowel in S1 to a high, front vowel in S5. Elba, however, starts off in S1 with a high, front GOOSE vowel but, interestingly, shifts towards a high, central position in the mouth in S3, reversing the movement that West showed. In Clopper et al. (2005: 23), the GOOSE vowels range between 300-400 Hertz at F1 and 850-1300 Hertz at F2. It should be noted that GOOSE fronting is a prevalent feature within certain accents of British English (see; section 3.5 for more details), therefore, this trend could be evidence of their natural accent. Also, whilst GOOSE fronting is not a salient feature of Baltimorese, it is a common feature within other General American accents and therefore could be a possible imitation of a more broad Americanised accent than the specific Baltimorese accent attempting to be ascertained.

Fronting occurs within Elba's developed vowels of S3 much more than in West's S5 vowels. For instance, FOOT, DRESS, GOAT, STRUT, TRAP and PALM all move to a more fronted position in the mouth than their original placements in S1 for Elba. However, the GOOSE vowel has been pushed backwards which is the one expected to be among those pushed forward here. This is also in a similar position with Clopper et al.'s (2005) Mid-Atlantic GOOSE vowel. The tendency of fronting within Elba's vowels also occurs alongside lower height as STRUT, TRAP, DRESS, GOAT and FOOT all become lower in height while simultaneously moving to a front position. What is happening with Elba's vowel chart over time that does not occur with West's is a stable pattern of change. Elba's vowels move towards a similar aim of becoming more fronted and lower in height, which displays a progression. West's front vowels of KIT, GOOSE and FACE all, similar to Elba, become more fronted in the mouth, however little change is apparent within the vowels of FLEECE, KIT, DRESS and GOAT.

For both West and Elba, the THOUGHT vowel is an anomaly, which shifts backwards in the mouth. There is no correlation between PALM and THOUGHT to constitute evidence of a merger between the vowels, though Clopper et al. (2005) also states that not all of their participants demonstrated this merger within the Mid-Atlantic group, thus this is not strong enough evidence to state whether Elba and West produced either accordingly until comparison with Reddick and Gilliard Jr.

4.2 Cross actor comparison

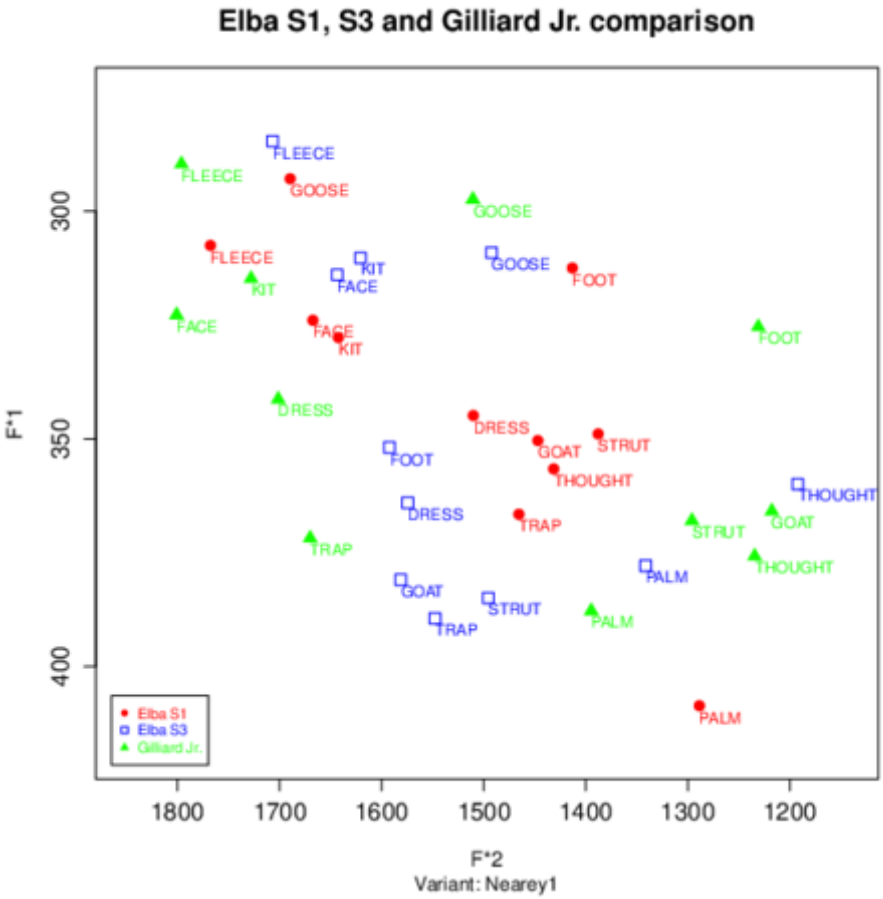


Figure 8 *Idris Elba S1 & S5 and Lawrence Gilliard Jr. vowel space comparison*

Fig. 8 depicts significant findings. Gilliard Jr.'s vowels: FLEECE, FACE, GOOSE, DRESS, TRAP, PALM and THOUGHT are all significantly fronted. There are obvious attempts at assimilation of fronting for similar to Gilliard Jr. in Elba's vowels, as within GOOSE, FLEECE, THOUGHT, TRAP and PALM, these all front greatly from his S1 to S3 tokens. Gilliard Jr.'s vowel space is spread out and there is a clear development of Elba's S3 vowel space towards Gilliard Jr.'s than his S1 space, where many of the vowels are closer together.

Concerning the GOOSE vowel specifically, an interesting comparison can be seen in Fig. 8. In S1 Elba fronts his GOOSE vowel significantly, whereas in S3 it moves backwards in the mouth and resides closer to Gilliard Jr.'s pronunciation, this shows that Elba adapted his pronunciation over time to develop towards his interlocutors on the series. Concerning FACE, Gilliard Jr. produces a more fronted example, and in S1 Elba's pronunciation was closer to Gilliard Jr.'s than in S3, where instead of fronting it moved higher in the mouth. This is similar to the phenomenon between West and Reddick's vowels (see Discussion). Also, with GOAT, in S1 it is a mid, central vowel whereas in S5 it is a low, central vowel. This does not correspond with Gilliard Jr.'s as his is a low, back vowel which is in align with Clopper et al.'s (2005) vowel

space /o/. Therefore, it can be assumed that Elba attempted to front the vowel in order to enhance the accent further, as it can be seen he repeated this with a majority of vowels, however it was incorrect in this instance. This proves that accent is more intrinsic to identity than simply attempting to mimic your interlocutors, especially considering both West and Elba underwent dialect coaching and both spent several years on the series (Baltimore Post Examiner 2015).

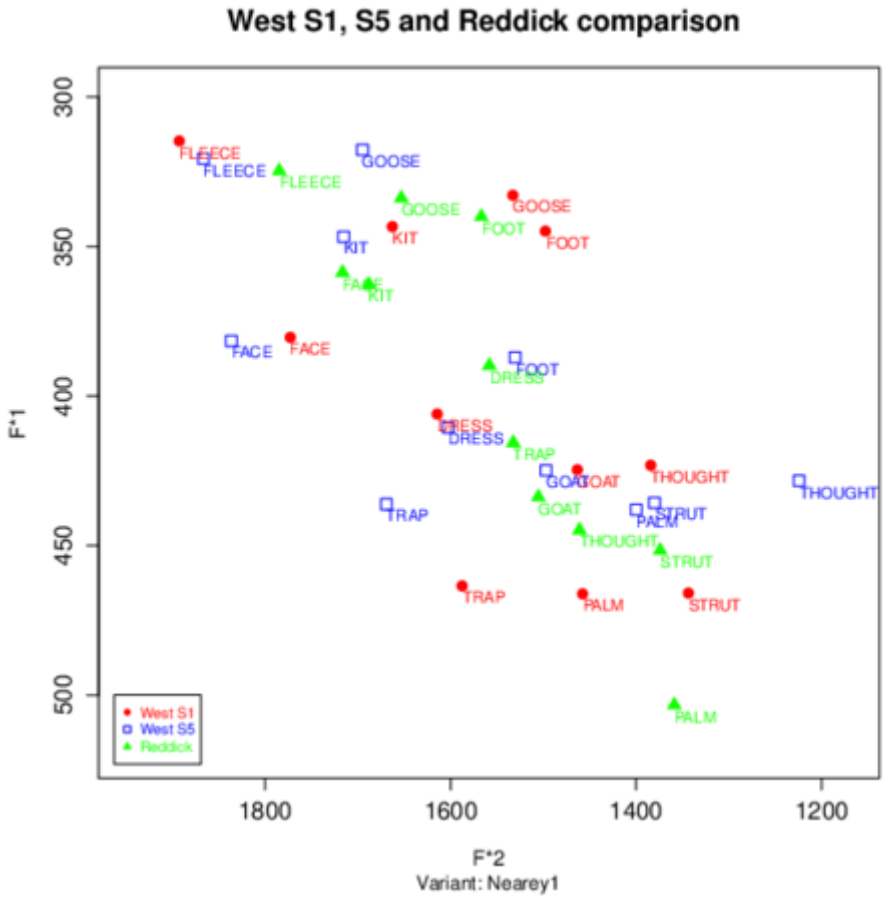


Figure 9 *Dominic West S1 & S5 and Lance Reddick vowel space comparison*

The first noticeable point is that Reddick's vowel space is very narrow; this could be the result of a more closed mouth when speaking and less to do with the data collected being problematic, as it is evident within all of Reddick's vowels. There is progression towards Reddick's vowel space between S1 and S5 with West, as in S5 there is close approximation in the positions of FLEECE, GOOSE, KIT and GOAT. This could be evidence of the difference between the speech communities depicted within *The Wire*, and that West not only assimilates towards a different accent than Elba but assimilates towards the specific speech community he is portraying within the series.

Concerning the anomaly of THOUGHT, an interesting point is that West's initial position in S1 was a closer approximation of Reddick's position than in S5. As stated previously, this is the only vowel to move to a backwards position drastically, and a conclusion could be drawn that it was a difficult pronunciation for West (see Discussion).

4.3 Overall development and comparison

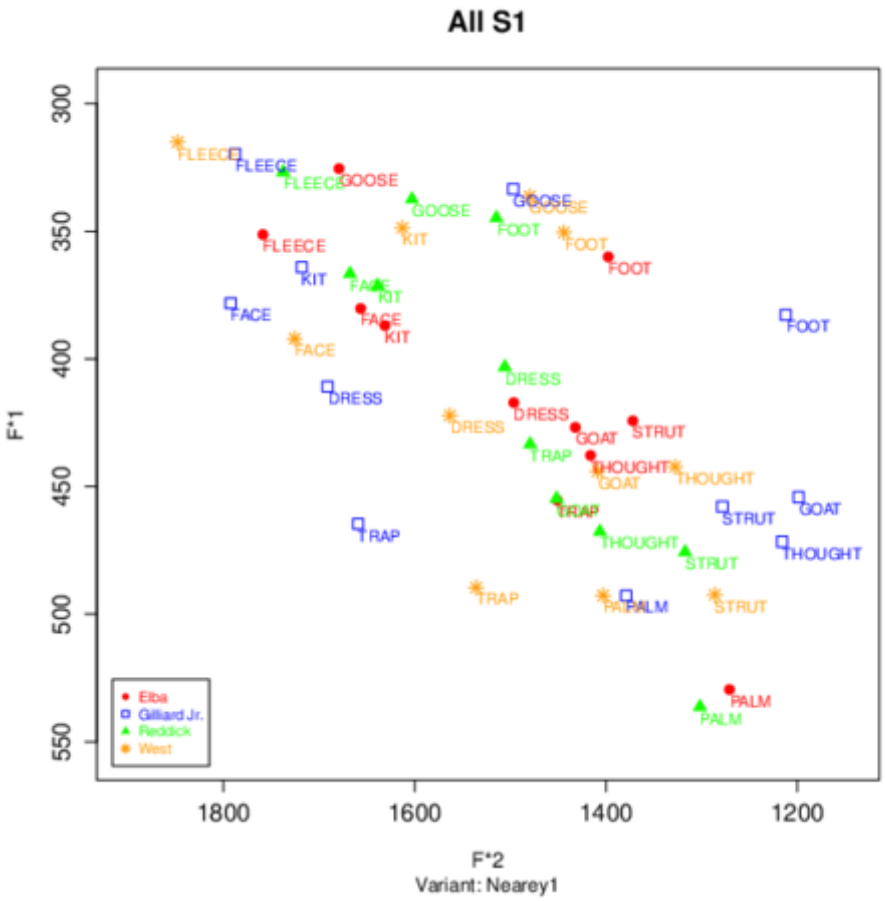


Figure 10 *All actors S1 vowel charts*

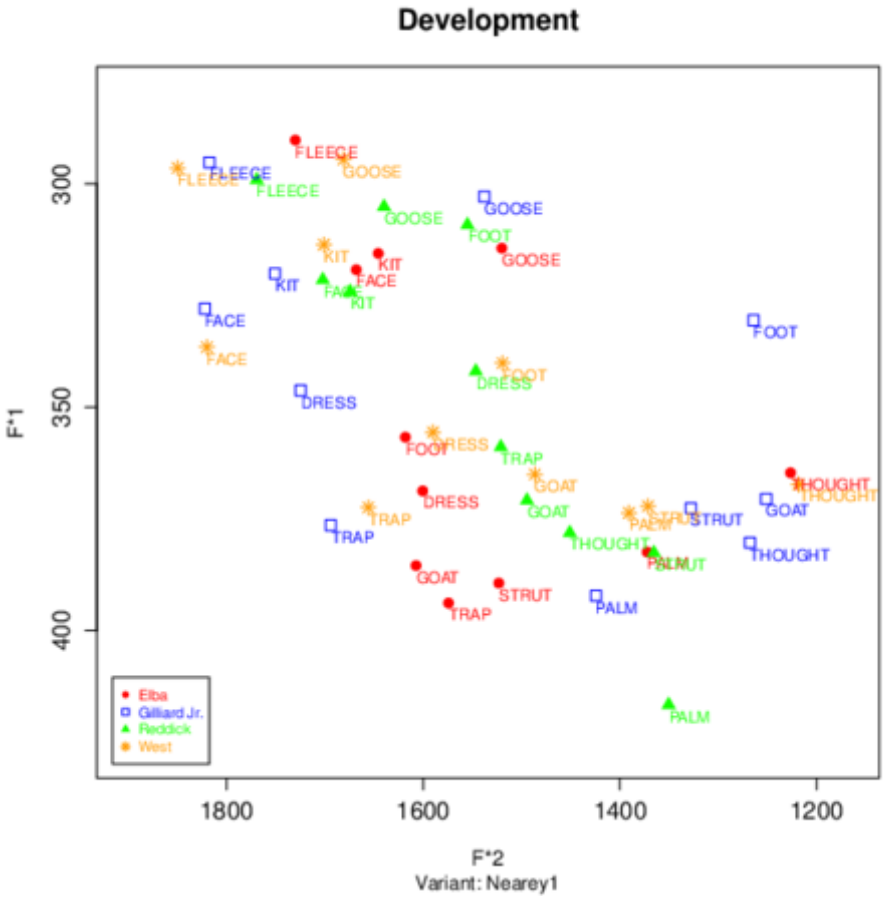


Figure 11 *Idris Elba S3, Dominic West S5 and Lance Reddick and Lawrence Gilliard Jr.'s vowel spaces*

To observe the overall development of West and Elba, Fig. 10 depicts their first appearances on the series alongside Reddick and Gilliard Jr.'s vowel spaces and Fig. 11 displays West and Elba's last appearances on the series alongside Reddick and Gilliard Jr.'s. These vowel spaces are able to clearly express the evident development the two British-English actors have undergone whilst performing their acquired dialects. In Fig. 10 Elba and West's vowels are greatly compact, whereas in Fig. 11 it can be observed how both their vowel spaces have spread out.

In Fig. 10 Gilliard and West's GOOSE vowels overlap as high, front vowels, whilst Elba and Reddick's GOOSE vowel has more distance between them. Then, in Fig. 11 the overall development chart of Elba and West, West's GOOSE vowel leaves the position of mid, central to join Reddick's as a high, front vowel and Elba's moves towards Gilliard's position as a mid, central vowel. This is highly interesting as it proves partly that Elba and West not only front their vowels in a Baltimorese manner, but they are assimilating them towards their specific

speech community within the series i.e., police vs. drug dealers. This provides supportive evidence of their ability to portray specific Baltimorese identities accurately.

5. Discussion

There is sufficient evidence of West and Elba's development over time. Whilst there are similarities between the Mid-Atlantic vowel space (Clopper et al. 2005: 22-3) and the participants in the analysis, there was also a great deal of variance between the vowels and who they corresponded to throughout. The limitations of 1) glides, 2) vowel position and 3) connected speech processes, were accounted for *as best as possible* but were not eliminated completely, as it was found whilst collecting and analysing the data that they often clashed. For instance, to gain a large representative field of different words, vowel positions and surrounding environments whilst also accounting for glides was a difficult task to complete. It was also found that *The Wire*'s script writing was a confounding variable that was not foreseen; each actor had a *relatively* small range of words that were often repeated. Therefore, whilst there was enough evidence to sustain the current hypothesis, future research should wish to employ a larger number of vowels to suffice for variance issues of reliability. Whilst AAVE has been well discussed within *The Wire* (see; Blayahher and Trotta 2011 and Severin Roald 2013) it does not present itself as a limitation within the current analysis. Accents of American English are often rhotic and Baltimorese is one of these, this results in r-coloured vowels (Wells' 1982: 121). As such Wells' (1982: 121) states that the vowels for NURSE, PALM and THOUGHT are often followed by an /r/, which is considered a 'glide' and therefore with PALM and THOUGHT the analysis was simply unable to adhere to the reduction of glides completely. NURSE was not considered within the current analysis, as Clopper et al. (2005) did not include it in their acoustic characteristics study of American English as a notable 'General' American vowel, and it was thus not seen as required. However, THOUGHT was coloured almost exclusively with surrounding lateral approximants within the data and it was extremely difficult to acquire one without. This could most likely account for the 'anomaly' described of THOUGHT, although the present analysis saw no way of acquiring a large enough vowel pool without utilizing glides within the phonetic environment.

Elba seems to have developed towards a more Baltimorean accent whereas West's remains considerably stagnant from beginning to end. Both of their vowel spaces spread over time and this is supportive towards Clopper et al.'s (2005: 23) vowel space findings. Elba's GOOSE fronting is of particular interest, in S1 he overshoots this vowel to a front position whilst in S3 it recedes back to a more centralised position in the mouth. This centralised GOOSE is more in line with the two Baltimorean actors in the analysis and therefore establishes positively that this vowel was also developing towards a Baltimorean accent. However, as Reddick produces a more constricted position with all his vowels, this presents the opposite meaning here, since

he is not producing a performed dialect. This is his own accent; therefore, it is representative of simply the way he talks as this is a trend within all of his vowels. Reddick's vowel space could be depicted as confounding due to its limited scope, however, together with Gilliard Jr. they were able to provide a wide range of examples for the vowel positions of Baltimorese, and hence aided the analysis to provide evidence that not every speaker of the same dialect performs in the same way (Milford 2000: 233). This gave the analysis a range of Baltimorese vowels against which to compare the performed vowels. A small analysis on Reddick and Gilliard was conducted to see if they had changed over time, which would be a considerable confounding variable if so. Each of the 11 vowels was analysed five times based on Clopper et al.'s (2005) analysis, within each actor from their last appearing episodes and the results were compared with a small sample from their vowels from the first season.

6. Conclusion

The utilisation of Praat was able to facilitate this analysis accurately to observe the nuance of accent variation within the same dialect and represent an effective approach to analysing the variations. This analysis was successful in providing substantial evidence that Elba and West portrayed truthful representations of Mid-Atlantic and Baltimorese vowel characteristics. Furthermore, there is clear development of their vowel spaces over their time on the series which positively developed towards Reddick and Gilliard Jr.'s vowel spaces respectively. In both Elba and West there was obvious vowel fronting, however it was seen significantly more in Elba's vowel spaces than West's. Whilst there is evidence in the vowel movements of West from S1 to S5 that depicts his development towards Baltimorese, it is significantly more apparent that Elba was able to develop and assimilate towards Baltimorese features substantially over time. The change that was considerably different between Elba and West was the consistent development of Elba's vowel patterns of vowel fronting. This fronting also coincided with lower height; a consistent pattern was established within his vowels from S1 to S3 which demonstrated a steady and consistent development. West was not able to show this within his vowel spaces.

The nuance of 'natural' dialect performance cannot be accurately depicted on screen (Hodson 2014: 60), however, Elba produces a close approximation of his intended accent much more successfully than West does, and consequently this analysis partially fulfils the hypothesises prediction. These results reaffirmed the public perception of Elba and West's performances, as it was widely acknowledged that Elba produced a more believable accent compared to West (see: Complex 2019, The Guardian 2008 & GQ 2018). Whilst David Simon and Ed Burns strove for an authentic TV series (Beers Fägersten 2016: 41 & Severin Roald 2013: 1), in partial respect to dialect, they could not completely fulfil this aim by employing two non-native

Baltimorean's. This counter's the genuine nature of authenticity when this line can so easily be broken, as is demonstrated within Elba's vowel space development. These findings establish that identity is a more fluid concept in relation to accent than currently socially defined.

This analysis has provided a strong base for future research on performed dialects and the ability for actors to blur the phonological lines of acquiring a new dialect identity. Future research should aim to gather a larger group of differing vowel environments and collect a greater number of participants to account for accuracy and reliability of results.

References

Baltimore Post Examiner. 2015. Accents, The Wire and Culture: Interview with Betty Ann Leeseberg-Lange. [Online] [Accessed 10 October 2019] Available from: https://baltimorepostexaminer.com/accents-wire-culture-interview-bettyann-leeseberg-lange/2015/02/12

Bassiouney, R. 2017. Identity and Dialect Performance: A Study of Communities and Dialects. London: Routledge

Bauman, C. 2013. An acoustic study of the MARY-MERRY-MARRY vowels in the MidAtlantic United States. Acoustical Society of America. 19 pp.1-9

Bauman, R. 2000. Language, identity, performance. Pragmatics. 10 (1) pp.1–5

Bauman, R. 2005. Commentary: Indirect Indexicality, Identity, Performance: Dialogic Observations. Journal of Linguistic Anthropology. 15 (1) pp.145-150

BBC. 2018. How The Wire became the greatest TV show ever made. [Online] [Accessed 5 December 2019] Available from: https://www.bbc.com/culture/article/20180412-how-the-wire-became-the-greatest-tv-show-ever-made

Beal, J. 2009. "You're not from New York City, you're from Rotherham": Dialect and identity in British Indie music. Journal of English Linguistics. 37 (3) pp.223–240

Beers Fägersten, K. 2016. Watching TV with a Linguist. New York: Syracuse University Press

Beinhoff, B. 2013. Perceiving identity through accent: attitudes towards non-native speakers and their accents in English. Oxford: Peter Lang

Bell, A. 1992. Hit and miss: Referee design in the dialects of New Zealand television advertisements. Language and Communication. 12 (3-4) pp.327-340

Bell, A. Gibson, A. 2011. Staging language: An introduction to the sociolinguistics of performance. Journal of Sociolinguistics. 15 (5) pp.555-572

Blayahher, O. Trotta, J. 2011. Game done changed: A look at selected AAVE features in the TV series The Wire. Moderna Spark. 105 (1) pp.15-42

Boersma, P. & van Heuven, V. 2001. Speak and unSpeak with PRAAT. Glot International. 5 (9) pp.341-347

Boersma, P. 2013. Acoustic Analysis. In: Devyani, S. & Podesva, R. Research Methods in Linguistics. Cambridge: Cambridge University Press, pp.375-396

Braber, N. 2016. Dialect perception and identification in Nottingham. In: Cramer, J. & Montgomery, C. Cityscapes and Perceptual Dialectology: Global Perspectives on Non-Linguists' Knowledge of the Dialect Landscape. Germany: Walter de Gruyter, pp.209-232

Braber, N. 2017. Performing Identity on Screen: language, identity, and humour in Scottish television comedy. In: Bassiouney, R. Identity and Dialect Performance: A Study of Communities and Dialects. London: Routledge, pp.265-285

Brian, R.G. 2008. The Wire. In: Edgerton, G.R. & Jones, J.P. The Essential HBO Reader. Lexington: University Press of Kentucky, pp.82-91

British Library. 2019. British Accents and Dialects: Received Pronunciation. [Online] [Accessed 5 December 2019] Available from: https://www.bl.uk/british-accents-and-dialects/articles/received-pronunciation

Bucholtz, M. Lopez, Q. 2011. Performing blackness, performing whiteness: Linguistic minstrelsy in Hollywood film. Journal of Sociolinguistics. 15 (5) pp.680-706

Clopper, C. Pisoni, D. & de Jong, K. 2005. Acoustic characteristics of the vowel systems of six regional varieties of American English. Journal of Acoustic Society America. 118 (3) pp.1-29

Complex. 2019. Idris Elba Pretended to be American to get on 'The Wire.' [Online] [Accessed 5 October 2019] Available from: https://www.complex.com/pop-culture/2019/08/idris-elba-the-wire-pretended-to-be-american-first-we-feast-interview

dialect blog. 2011. Language log on the Accents in "The Wire". [Online] [Accessed 5 October 2019] Available from: http://dialectblog.com/2011/08/09/accents-in-the-wire/

Di Paolo, M. & Yaeger-Dror, M. 2011. Sociophonetics: A student's guide. USA: Routledge

Escudero, P. Boersma, P. Schurt Rauber, A. & Bion, R.A.H. 2009. A cross-dialect acoustic description of vowels: Brazilian and European Portuguese. Acoustical Society of America. 126 (3) pp.1379–1393

Ethridge, B.D. 2008. Baltimore on The Wire: The tragic moralism of David Simon. In: Leverette, M. Ott, B.L. & Buckley, C.L. It's Not TV: Watching HBO in the Post-Television Era. New York: Routledge, pp. 152-164.

Ferragne, F., & Pellegrino, F. 2010. Formant frequencies of vowels in 13 accents of the British Isles. Journal of the International Phonetic Association. 40(1) pp.1-34

Flanagan, P.J. 2019. 'A Certain Romance': Style shifting in the language of Alex Turner in Arctic Monkeys songs 2006–2018. Language and Literature. 28 (1) pp.82-98

Frank, M. Muhlack, B. Zebe, F. & Scharinger, M. 2020. Contributions of pitch and spectral information to cortical vowel categorisation. Journal of Phonetics. 79 pp.1-13

Foulkes, P., Scobbie, J.M. & Watt, D.J.L. 2012. Sociophonetics. In: Hardcastle, W.J., Laver, J., & Gibbon, F.E. The handbook of phonetic sciences. United States: Wiley-Blackwell.

Flynn, N. & Foulkes, P. 2011. Comparing vowel formant normalisation methods. International Phonetic Association, pp.683-686

GQ. 2018. How Every Character Was Cast on The Wire. [Online] [Accessed 5 October 2019] Available from: https://www.gq.com/story/how-every-character-was-cast-on-the-wire

Halonen M. & Pietikäinen, S. 2017. Mocking fakeness: Performance, phonetic aspiration and ethnic humour. Pragmatics. 27 (4) pp. 507-528

Harrington, J. 2013. Acoustic Phonetics. In: Hardcastle, W.J. Laver, J. & Gibbon, F.E. The Handbook of Phonetic Sciences. Chichester: John Wiley & Sons, pp.

HBO. 2019. The Wire – Cast and Crew. [Online] [Accessed 4 December 2019] Available from: https://www.hbo.com/the-wire/cast-and-crew

Hodson, J. 2014. Dialect in Film and Literature. Hampshire: Palgrave Macmillan

Holliday, C. 2015. The accented American: The new voices of British stardom on US television. Journal of British Cinema and Television. 12 (1) pp.63-82

Hughes, A. Trudgill, P. & Watt, D. 2012. English Accents and Dialects: An Introduction to Social and Regional Varieties of English in the British Isles. UK: Routledge

IMDB a. 2020. Idris Elba. [Online] [Accessed 15 January 2020] Available from: https://www.imdb.com/name/nm0252961/

IMDB b. 2020. Dominic West. [Online] [Accessed 15 January 2020] Available from: https://www.imdb.com/name/nm0922035/

IMDB c. 2020. Lance Reddick. [Online] [Accessed 15 January 2020] Available from: https://www.imdb.com/name/nm0714698/

IMDB d. 2020. Lawrence Gilliard Jr. [Online] [Accessed 15 January 2020] Available from: https://www.imdb.com/name/nm0319142/?ref_=nv_sr_srsg_0

Jaffe, A. 2000. Comic performance and the articulation of hybrid identity. Pragmatics. 10 (1) pp.39–59

Johnstone, B. 2009. Pittsburghese shirts: Commodification and the enregisterment of an urban dialect. American Speech. 84 (2) pp.157–191.

Kaur, D & Kumar, G.B. 2016. Vowel Analysis for Indian English. Procedia Computer Science. 93 pp.533-538

Knight. R.A. 2012. Phonetics: a coursebook. Cambridge: Cambridge University Press

Knooihuizen, R. 2016. Accuracy and acceptability of second-dialect performance on American television. English Language and Linguistics. 23 (2) pp.229-252

Konert-Panek, M. 2017. Overshooting Americanisation. Accent stylisation in pop singing-acoustic properties of the bath and trap vowels in focus. Research in Language. 15 (4) pp.371-384

Konert-Panek, M. 2018. Singing Accent Americanisation in the Light of Frequency Effects: LOT unrounding and PRICE monophthongisation in Focus. Research in Language. 16 (2) pp.155-168

Korkmaz, Y. & Boyaci, A. 2018. Classification of Turkish Vowels Based on Formant Frequencies. 2018 International Conference on Artificial Intelligence and Data Processing (IDAP). 28-30 September, Turkey

Kozloff, S. 2000. Overhearing Film Dialogue. California: University of California Press

Ladefoged, P. 2003. Phonetic Data Analysis. UK: Blackwell Publishing

Levis, J.M. Moyer, A. & Jessner, U. 2014. Social Dynamics in Second Language Accent. Germany: De Gruyter

Lippi-Green, R. 2011. English with an Accent: Language, Ideology and Discrimination in the United States. USA: Routledge

Medium. 2018. The Inside Story on How “The Wire” Was Cast: An Oral History. [Online] [Accessed 5 December 2019] Available from: https://medium.com/s/story/how-the-wire-was-cast-an-oral-history-4a6475943fb

Meek, B.A. 2006. And the Injun Goes "How!": Representations of American Indian English in White Public Space. Language in Society. 35 (1) pp.93-128

Milford, J. 2000. Baltimore Speech: Evidence From Phonology. CLA Journal. 44: 2 pp.231-242

NORM a. 2015. About NORM. [Online] [Accessed 5 May 2020] Available from: http://lingtools.uoregon.edu/norm/about_norm1.php

NORM b. 2015. Methods. [Online] [Accessed 5 May 2020] Available from: http://lingtools.uoregon.edu/norm/norm1_methods.php

Oxford Bibliographies. 2018. ‘Idiolect’ David Wright [Online] [Accessed 23 November 2019] Available from: https://www.oxfordbibliographies.com/view/document/obo-9780199772810/obo-9780199772810-0225.xml

Preston, D. 1989. Perceptual Dialectology: nonlinguists’ views of areal linguistics. Holland: Foris Publications

Qadir Khan, A. 2014. An acoustic analysis of Pahari oral vowels. Lingua Posnaniensis. 56 (2) pp.29-39

Quaglio,P. 2009. The sitcom: Friends vs. natural conversation. USA: John Benjamins

Refinery29. 2014. 31 Actors You Forgot Were British. [Online] [Accessed 5 December 2019] Available from: https://www.refinery29.com/en-us/2014/11/77208/actors-who-are-really-british

Rickford, J.R. Duncan, G.J. Gennetian, L.A. et al. 2015. Neighbourhood effects on use of African-American Vernacular English. Proceedings of the National Academy of Science of the United States of America. 112 (38) pp. 11817-11822

Ristovska, L. Jachova, Z. Spasov, J. & Balova, T. 2018. Acoustic Characteristics of Macedonian Vowels. The Journal of Special Education and Rehabilitation. 19 (3/4) pp.40-50

Schwartz, G. & Kaźmierski, K. 2019. Vowel dynamics in the acquisition of L2 English – an acoustic study of L1 Polish learners. Language Acquisition. Available from: https://doi.org/10.1080/10489223.2019.1707204

Screen Rant. 2017. The Wire: 15 Moments That Prove It's The Best TV Show of All Time. [Online] [Accessed 4 December 2019] Available from: https://screenrant.com/the-wire-best-moments-prove-best-tv-show-ever/

Severin Roald, M. 2013. Code Switching in The Wire. [Online] [Accessed 16 November 2019] Available from: http://bora.uib.no/bitstream/handle/1956/6844/106843144.pdf?sequence=1&isAllowed=y

Strycharczuka, P., & Scobbie, J.M. 2017. Fronting of Southern British English high-back vowels in articulation and acoustics. The Journal of the Acoustical Society of America. 142, pp.322-331

Styler, W. 2017. Using Praat for Linguistic Research. [Online] [Accessed 10 Dec 2019] Available from: http://wstyler.ucsd.edu/praat/UsingPraatforLinguisticResearchLatest.pdf

The Audacity of Despair. 2012. I meant this, not that. But yeah, I meant it. [Online] [Accessed 10 October 2019] Available from: https://davidsimon.com/i-meant-this/

The Guardian. 2008. I just did my best De Niro impression. [Online] [Accessed 5 October 2019] Available from: https://www.theguardian.com/media/2008/jul/17/television.usa

The University of York. 2014. Hollywood dialect coach speaks at York. [Online] [Accessed 5 October 2019] Available from: https://www.york.ac.uk/news-and-events/news/2014/events/andrew-jack-event/

The Washington Post. 1996. From Bashton to Noo Yawk, Alabayama to Minnesoota. [Online] [Accessed 5 October 2019] Available from: https://www.washingtonpost.com/archive/1996/06/12/from-bahston-to-noo-yawk-alabayama-to-minnesoota/1690d4c6-08c2-4f3c-98b2-29637ad2767d/

Vox. 2015. Kathy Bates's American Horror Story accent, explained by a linguist.[Online] [Accessed 5 October 2019] Available from: https://www.vox.com/2014/10/22/7031005/kathy-bates-american-horror-story-accent-baltimore

Vulture. 2015. David Simon on Spotlight and the State of Media. [Online] [Accessed 5 December 2019] Available from: https://www.vulture.com/2015/11/david-simon-spotlight-the-wire-tom-mccarthy.html

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

Wells, J.C. 1999. Accents of English 3: Beyond the British Isles. Cambridge: Cambridge University Press

Wheeler, R. 2017. Sounding Black-ish: West Indian Pidgin in London Performance and Print. Eighteenth Century Studies. 51 (1) pp.63-87

Wired. 2016. A Lot of Actors Suck at Accents. Not Idris Elba! [Online] [Accessed 5 October 2019] Available from: https://www.wired.com/2016/11/actor-accent-analysis/

Wolfram, W. & Schilling-Estes, N. 2006. American English: dialects and variation. Oxford: Blackwell Publishing

Yan, Q. Vaseghi, S. Rentzos, D. Ho, C.H. & Turajlic, E. 2003. Analysis of acoustic correlates of British, Australian and American accents. 2003 IEEE Workshop on Automatic Speech Recognition and Understanding (IEEE Cat. No.03EX721). 30 November - 4 December, St Thomas, VI, USA.

Yan, K. Vaseghi, S. Rentzos, D. & Ho, C.H. 2007. Analysis and Synthesis of Formant Spaces of British, Australian, and American Accents. IEEE Transactions on Audio, Speech, and Language Processing. 15 (2) pp. 676-689.

Zheng, D.C. Dyke, D. & Berryman, F. 2012. A new approach to acoustic analysis of two British regional accents—Birmingham and Liverpool accents. International Journal of Speech Technology. 15 pp.77-85