New News Old News:
A Sociophonetic Study of Spoken Australian English in News Broadcast Speech

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The notion of language as a marker of identity is usefully explored in relation to news broadcast language. Newsreaders' speech, like all spoken language, is subject to change over time, and radio and television bulletins have been recording this process for as long as the technology has allowed. Evidence of Australia's evolution from colonial outpost to independent nation can be heard in the speech of its newsreaders, who in the mid 1940s began to move away from the RP accent that had been adopted along with the BBC model of broadcasting. This article presents some findings of research into those aspects of Australian newsreaders' speech which indicate change most clearly, i.e. vowel quality and intonation. Instrumental analyses conducted on data collected from three speaker groups suggest that whereas vowels have clearly shifted away from RP-like accents towards 'General' and even 'Broad' accents of Australian English, American-sounding intonation patterns may be developing in the speech of certain commercial FM radio newsreaders, contrary to what is stated in the literature.

Hearing an example of the ‘old’ Australian radio voice often causes us to laugh with disbelief and embarrassment, in the same way we view photographs of ourselves as teenagers in the family album. There would seem to be no connection between our past and present selves, yet the incontrovertible evidence is there before us. The ‘British’ sound that characterized Australian news bulletins in the 1950s has now vanished, and it is taken for granted that the majority of newsreaders speak with an accent identifying them as Australian. Yet for some 40 years after the advent of radio in Australia, broadcasting clung to the British model inherited from the BBC including its Received Pronunciation (RP) accent, while Australian English was dismissed as an inappropriate and inferior variety for this purpose. It was not
until the 1970s that the colonial shackles were shed and audiences could hear something of themselves on the airwaves. It was finally time for the ‘Australianization’ of broadcasting, including news. The current research looks at how the sound of Australian newsreaders’ speech has changed since the 1950s. The two aspects of interest are those which tend to be most obvious auditorily, that is vowel quality and intonation, and attempts are made to support auditory impressions with instrumental analysis. This paper begins by tracing the evolution of the newsreaders’ accent from its RP origins to the present-day ‘General’ or ‘Broad’ (see below), and goes on to describe the relevant methodology, aims and initial results.

The concept of ‘Standard English’ suggests the type of grammatical correctness that is usually associated with written rather than spoken language. Standard English is the variety that is taught in schools for example, and used for the writing of official and legal documents. Importantly, although a standard language has no inherently superior qualities it is perceived as being more correct, precise, pure and elegant than other dialects (Burridge 2004). Thus Standard English, with its lexical, syntactic and morphological guidelines, has become the benchmark for the ‘best’ form of the language, and its reinforcement within educational institutions has made it the gateway to higher social status. The aforementioned British model of broadcasting is closely aligned with the idea that there also exists a ‘correct’ way of speaking, or a spoken ‘standard’. The highest-prestige spoken realization of Standard English in Britain and its former Empire historically has been held to be RP. Contrary to other accents in England which identify speakers as originating from a specific region, RP is an accent linked to social class rather than geography which can be spoken all over the country. In the nineteenth century it became the accent of the public school elite, and it is still considered to be an ‘educated’ accent, used by an estimated 2% of the population. According to Wells (1982) it is typically spoken by barristers, stockbrokers and diplomats, although this description may now be somewhat out of date.

Until the 1970s RP was also the mandatory accent for BBC announcers. Leitner (1980: 84) states that ‘RP had come to be used in the BBC quite naturally because the BBC was run by members of the upper middle and upper classes who were either RP speakers themselves or of one of the “socially acceptable” so-called national accents’, these being Scottish, Welsh or Irish. Moreover, the BBC would only employ people as announcers whose educational or professional background meant they were natural speakers of RP. Crystal claims RP was selected by the BBC because ‘it was a regionally “neutral” accent, and was thought to be more widely understood than any regional accent’ (1995: 365). However it happened, what Gimson (1970) refers to as the ‘general’ variety of RP became the accent that was used in British broadcasting, and this subsequently spawned the different branches of Australian news speech style that have developed over the past five
decades (it is not the intention here to provide details of the phonemes comprising ‘general’ RP).

To take a broader perspective for a moment, the origin of Australian English itself is a question that has divided scholars for some time. There is no single or straightforward explanation, with some believing London English was the ‘mother’ accent transported to the colony and others favouring the theory that a new dialect developed amongst the children during the early settlement years. The consensus nevertheless seems to be that Australian English originated in Australia. Unlike Britain, Australia does not yet have clearly defined regional variation, but there do exist socioeconomic indices in the form of three nondiscrete accents or sociolects which have traditionally been referred to as Cultivated, General and Broad. Cultivated most closely approximates RP, although the similarities are diminishing as both accents change over time. Only a small proportion of the Australian population has ever spoken with a Cultivated accent (Mitchell and Delbridge’s 1960s study calculated it to be 11%), and a subsequent study by Horvath (1985) found the numbers of General speakers were increasing. Cox (2006) states that by the end of the 1980s the General accent of Australian English had become the norm, especially for younger speakers.

We know that language including accent is constantly evolving, and Harrington, Cox and Evans (1997), Cox (1998, 1999, 2006), and Cox and Palethorpe (2001) have shown that the vowels of Australian English have changed considerably since the 1960s. Broadcast language is interesting in that it not only has the capacity to reflect the speech of the wider community but it also employs different speech styles, particularly on commercial radio. It is in the commercial arena that obligations towards sponsors, not to mention the need to create an identifiable and appealing station style within the crowded media marketplace, push broadcasters to explore new linguistic territory. This results in stylistic change which can in turn influence intonation patterns and vowel quality. Thus archival news material can provide insight into how Australians wanted to present themselves at any given point in time. Somewhat like DNA frozen in tree sap, the news archives have been preserving evidence of Australia’s linguistic and stylistic genealogy for as long as the technology has made it possible.

1. ‘BBC’ Broadcasting in Australia

Radio transmission began in Australia in 1924, with the Australian Broadcasting Commission as it was then known, being formally established in 1932. The ABC was modelled in most respects on the BBC (see Delbridge 1999; Leitner 1984; Pyvis 1993; Johnson 1988) and a decision had to be made as to what the official broadcast voice should be. Since the nation was
still so firmly attached to its British heritage and there was very strong negative feeling towards the local accent, Australian English was not even considered. Whereas the BBC variety of RP was seen as the prestige model, Australian speech was criticized for being lazy and excessively nasal. Indeed many ABC announcers were either British or were BBC recruits. Delbridge quotes the then Chairman of the ABC, W.J. Cleary, as saying in 1941 ‘Every quest for announcers has revealed that the number of men most suitable have been Englishmen’ (1999: 262). Johnson notes that in the 1930s the ABC ‘pursued the BBC’s authoritative style and distanced manner in many of its programmes’ (1988: 121), and Kent states that ‘in the 1930s, newsreaders were usually Englishmen with wondrously rounded Home Counties vowels, who presented a news report as though they were reading the Ten Commandments with divine permission’ (1983: 129). Furthermore, in the same way the BBC took it upon itself to be the model for the masses, to improve their cultural awareness and to provide them with a correct linguistic reference, the ABC saw itself as the benchmark in broadcasting, and responsible for setting high standards.

The ABC also modelled what was eventually called the Standing Committee on Spoken English, or SCOSE, on the BBC equivalent, its primary function being to provide a source of linguistic reference for ABC staff in relation to ‘all aspects of spoken and written English’ (ABC 2007). In the 1940s there seems to have been only one enthusiastic supporter of the home grown accent named Alexander Mitchell, an Australian scholar who was influenced by Daniel Jones while completing his PhD in London. Once back in Australia, Mitchell strongly promoted what he called the ‘educated’ variety of Australian English, and was instrumental in pushing for it to be heard on air. It was not until 1952 when Mitchell was Chairman of the SCOSE that it was thought ‘the ABC should make some departure from BBC practice and recognize Australian English’ (ABC 2007).

One former Australian newsreader who clearly shared Mitchell’s views was James Dibble. Employed by the ABC in 1948, he was adamant he ‘never wanted to speak with a British-sounding accent’ (interview conducted 7/12/04). Another ABC announcer, the late Keith Glover, who commenced his career in 1947 in Brisbane, stated that this was a time when the ABC was specifically seeking voices which sounded Australian (interview conducted 14/7/04). Neither Dibble nor Glover could have been mistaken as British, though their accents would have conformed to the ‘educated’ variety of Australian English required by the ABC. However, Michael Charlton (another former announcer/newsreader who was born in Australia and commenced his employment with the ABC in 1944) spoke with an accent that to the average ear would have been indistinguishable from RP. The reason he gave for this was that he was ‘brought up to speak well’ (interview conducted 25/8/05). This is evidence of the sense of the connection people still felt to
their English roots in the 1940s and of a belief in RP as the standard, an attitude which has now all but disappeared. The immense social change that has taken place in Australia (and elsewhere) since the 1960s has meant the strength of the cultural link with Britain has weakened substantially, and this has been reflected in broadcast speech.

The commercial media were not under the same constraints as the ABC of course, and were free to focus on the popular rather than the erudite. They experimented much more with programme formats and speech styles, but it seems everyone abandoned RP-like speech in newsreading at around the same time, and by the mid 1970s it was time to move away from the British inheritance for good. After a prolonged period of federal Liberal government in Australia, 1972 heralded the return of the Australian Labor Party. Blair suggests this particular ALP election campaign, branded with the slogan ‘It’s Time’, ‘either coincided with, or initiated, a shift in national consciousness’ characterized by a ‘heightened awareness of Australian cultural icons’ and ‘a greater acceptance of the Broad Australian accent’ (1993: 65–66). The mid-1970s also saw the belated introduction of FM radio to Australia, and the subsequent granting of the first commercial FM licences in 1980 increased opportunities for stylistic change, the result of which is the youth-oriented, informal FM radio style of today.

Much has been written about American women having been excluded from broadcasting (especially news) due to their voices being too high-pitched or lacking in authority (see Hosley 1987; Sanders and Rock 1988; Marzolf 1977). As was the case in the United States, women only began to read the news in Australia towards the end of the 1970s – until then it had been a strictly male occupation. Crucially for this study, despite the fact that by the early 1980s it was no longer expected that newsreaders speak with RP-like accents, impressionistically it would seem the women continued to sound Cultivated in comparison with the men, who for the most part had already moved away from Cultivated towards General and even Broad. It should be noted that of all the newsreaders interviewed for this study only one stated that he had been asked to speak with an RP-like accent. Two or three said it was understood that one should do so, but this does not seem to have been official policy anywhere, even at the ABC.

2. Style in News Speech

One of the difficulties of this research is working out what is specific to the general community’s speech, and what belongs to this particular population of newsreaders. To a certain extent they reflect each other. For instance, all the radio news directors interviewed said they wanted their newsreaders to speak in the ‘language’ of their audience (presumably to create feelings of
solidarity and prevent them from switching to a rival station). This highlights the importance of style in speech analysis. In looking at vowel change in Australian broadcast speech it is impossible not to address the issues of technological and stylistic change as well. The end of RP-like accents in newsreading coincided with the introduction of a less impersonal and much less formal style of delivery. One Melbourne AM radio journalist credits Brian Whyte as being one of the people who introduced the informal, personalized news style into commercial AM radio, as is evident in this extract from one of Whyte’s bulletins at 2SM in Sydney from 1977:

From next Monday people who want to go to the expense will be able to buy themselves the latest in telephones – the so-called touchphones, which have push buttons instead of a dial. Telecom says touchphones are easier to use, and you’re less likely to get wrong numbers, and I find that all very encouraging.

Further to the subject of new technology, several of the middle-aged newsreaders who were interviewed mentioned having been trained by a voice coach in Melbourne whose lessons seem to have mainly concerned voice projection. Today with improved audio technology there is no need to speak with as much force for the voice to transmit clearly, something which has no doubt greatly assisted with the development of a less formal newsreading style. Part of the stiffness and authority of the early news sound was simply the effort required on the part of the newsreader to get the sound out in a way it could be heard and understood by the listener at home. Now there is far less voice training conducted, particularly in radio, and young graduates from journalism courses often find themselves imitating the style of their colleagues. The voice coaches interviewed stated that this has led to ‘bad habits’ including, once again, excessive nasality.

Writing style must also be taken into account. Almost all participants in the study described the contemporary newsreading style as ‘conversational’, although the term appeared to have a rather general application when in fact it can only be said to characterize certain commercial FM stations. In order to be conversational, news must be specifically written that way, and features of informal speech such as flapping and utterance-final high rising terminal (HRT) then find their way quite easily into the youth-oriented commercial FM radio bulletins. The very short length of FM news (often between one and three minutes) is probably a further contributing factor to the use of HRT. Contrary to the AM radio news story comprising three or more sentences, frequently the FM radio equivalent will have only one or two, leading to a ‘list-like’ effect as the reader speeds through several stories. Competition between commercial FM stations has very likely facilitated the introduction of informality into newsreading insofar as the need for a seamless transition between programme and news bulletin (to avoid listener ‘drop-off’) has
meant that newsreaders have gradually adopted a more relaxed and casual style in keeping with that of the programme hosts. To date HRT has not been a feature of television newsreading (whether the stations are commercial or not), nor of AM radio news presenters’ speech, which has not yet shifted as far from the ‘parent’ BBC style as that of their FM rivals. On the other hand, one very noticeable marker of the ‘old’ RP-like news voice, the tapped /r/, has disappeared from all newsreading contexts.

As far as the performative aspect of newsreading is concerned, all interviewees stated that although they did not modify their accent when on air they did endeavour to speak as clearly as possible. Thus in the speech of FM radio newsreaders we now find a sort of hyperarticulated ‘conversational’ speech style manifesting the General to Broad vowel quality used commonly in Australian society, along with exaggerated intonational patterns (to be discussed below). Although the intention is to communicate the news in a manner the audience will identify with, the end result does not in fact reflect the way people actually speak.

3. Previous Work on Australian English

Following on from the large scale impressionistic study conducted by Mitchell and Delbridge in the early 1960s which subsequently classified the population as speakers of Cultivated, General or Broad accents, Bernard (1970) carried out the first serious acoustic analysis of Australian English vowels. Amongst other things he found that a phonetically lower onset of diphthongal movement for /eɪ/ was more likely to indicate a Broad accent, and Cultivated /iː/ was characterized by more fronted and raised targets relative to Broad. Cox (1998), in reanalyzing Bernard’s data, found that two markers of a broader accent in Australian English were a retracted (rather than lowered) first target for /eɪ/ and a ‘marked onglide’ for /iː/. Figure 1 below illustrates the latter for one of the elderly speakers in this study. In the top spectrogram the second formant frequency (F2) is almost horizontal throughout the production of the 2 /iː/ vowels (Cultivated accent), whereas in the re-read an obvious onglide can be seen via the greater curvature of F2 (slightly broader accent).

In their 2001 synchronic and diachronic studies Cox and Palethorpe also showed evidence of a lowered first target of /eɪ/, leading them to claim this is one of the changes in progress in Australian English. These studies were conducted on the citation form speech of adolescent or young adult males. Harrington et al. (1997), also using citation form speech, examined data across age ranges and gender and found that the first target of Cultivated /eɪ/ was significantly fronted relative to Broad and General in women, and relative to General in men. As far as /aː/ is concerned, Cox (1998) finds
Fig. 1: Spectrograms of the words Egypt and key produced by elderly speaker E2 in 1951 (top) and 2005 (bottom). The second formant (F2) in the reread (bottom) shows a marked onglide in comparison with the original recording (top). Measurements are in Hz.

increasing broadness to be characterized by a lowered and retracted first diphthong target, whereas Harrington et al. (1997) describe broader /aɪ/ as having a raised and retracted T1, the onset of the diphthong trajectory.

4. Research Aims and Methodology

It was thought that a straightforward analysis of the broadcast speech of contemporary mainstream newsreaders from the most popular capital city stations might yield evidence of any new speech trends, particularly if some knowledge of the newsreaders’ background and training were also obtained. Somewhat unexpectedly, almost everyone contacted agreed to be interviewed with a view to discovering this information. In addition to providing
these details, all speakers (being either current or former newsreaders) were asked to read a word list and extracts from contemporary and archival news bulletins so as to allow maximum options for analysis. Furthermore, the author was able to source archival bulletins for 25 of the 80 speakers interviewed. These participants were thus also asked to re-read transcribed excerpts of their own earlier broadcasts, effectively producing identical data over a time span of between 16 and 54 years. Not surprisingly this material promised to be the most interesting, and 3 speaker groups were selected for comparison, being 4 middle-aged males (referred to as ‘M’) and 4 middle-aged females (‘W’) with archival footage from the 1980s, and 4 elderly males (‘E’) with archival bulletins broadcast between 1951 and 1965 (including James Dibble and Michael Charlton). Since an auditory analysis (i.e. analysis performed by close listening rather than instrumentally) suggested that the accent shift for /aɪ/ and /eɪ/ apparent in 2 of the 4 middle-aged female speakers was greater (i.e. further away from Cultivated) than for the 4 males of the same age, the first aim was to try and confirm via instrumental analysis whether this was so. The second was to see whether the elderly speakers would show the greatest change given the greater timespan between recordings, despite the fact that impressionistically they did not appear to have moved very far from the RP-like or ‘educated’ Australian accents of their 1950s recordings. At the time of writing, the study has not yet been completed, so only partial results will be reported here.

All archival broadcasts for the 8 middle-aged men and women took place between 1979 and 1984 when the speakers were aged for the most part in their early 20s and they were in the early stages of their newsreading careers. The majority were approximately 45 years old at the time of the re-recording. The 4 elderly males were aged between 28 and 39 when they broadcast their original bulletins, and were between 79 and 82 when re-recorded. When re-reading the transcript of their original material speakers were instructed to do so in their habitual newsreading style, i.e. they were not asked to imitate the original recording, and it was not played to them beforehand. This directive was slightly more difficult for the retired newsreaders who did not have a ‘current’ style. A Rode S1 condenser microphone was used with an external Tascam US122 USB audio/MIDI interface device to record directly onto a laptop computer at a sampling rate of 44.1kHz with 16 bit resolution. The archival material was variously supplied on VHS, DAT, audio cassettes and CD and was digitized using Sonic Foundry Sound Forge v.6 software at a sampling rate of 44.1kHz with 16 bit resolution. Some of the material was of limited duration and proved problematic in terms of the number of usable tokens it provided for analysis. A speech database was created using EMU software tools (see Cassidy and Harrington 2001).

The study concentrates on the vowels which impressionistically appear to have shifted away from Cultivated between recordings, some of which have
traditionally shown change in Australian English. Thus the focus is primarily on the monophthongs /æ/, /e/, /i:/, and the diphthongs /aɪ/ and /eɪ/.

To facilitate the annotation of the data, for each speaker all words containing for example /æ/ were edited together into a single sound file (therefore each speaker has one '/æ/' file for the original read and another for the re-read). In most cases primary stressed monophthongs and diphthongs were measured in the same words in each recording, but this was not always possible due to lack of formant frequency clarity, particularly with the female speakers. Vowels surrounded by nasals, liquids, rhotics and glides were excluded to avoid coarticulatory effects. Vowel charts were created by plotting the averaged first and second formant frequency measurements (F1 against F2). For reporting purposes significance is defined as p<.05 and trends as p<.10.

5. Results

What became immediately apparent upon plotting the charts was the similarity in the overall shape of the vowel space for the majority of speakers for both recordings, as can be seen for this male speaker below (Figure 2).

![Vowel chart for male speaker M4. Dotted lines indicate the original read (1983) and solid lines indicate the re-read (2006). 'R' denotes 're-read'. All measurements are in Hz.](image-url)
When all tokens for these vowels (excluding /æ/) are represented in the vowel space, a high degree of overlap between the original and re-reads is evident (see Figure 3 below). Not surprisingly, this speaker displays almost no perceptible accent change.

The correspondence in the vowel space between monophthong and diphthong realization was noted in Cox (1999) and Cox and Palethorpe (2001). Results of the current study also indicate that for many of the speakers certain diphthongs have shifted in parallel with their corresponding monophthongs (see Figure 4). For example male speaker M4 raises the first target of his /eɪ/ diphthong in the re-recording to the same extent as he raises /æ/ and /aː/ (although in this instance none is statistically significant), and he produces it in the same location within the vowel space relative to /æ/ and /aː/ as in his original recording. His second target is also realized approximately the same distance from /e/ in both reads, and as with the monophthongs he shows no perceptible change to this diphthong between record-
ings. Thus the (relatively small) changes that have occurred apply to his vowel system as a whole, rather than to isolated parts of it.

**Fig. 4:** Vowel chart for male speaker M4 with his /ei/ diphthong superimposed on the monophthongal vowel space. Dotted lines indicate original read (1983) and solid lines the re-read (2006). 'R' denotes the re-read. 'X' indicates the vowel space centroid. All measurements are in Hz.

It is important to note that for General or Broad speakers of Australian English the first target (T1) of /eɪ/ is usually produced somewhere between /æ/ and /a:/, as is the case for male speaker M4 (above) in both the original and re-read. A Cultivated speaker produces T1 further towards the front of the vowel space, usually somewhere between /æ/ and /e/, as evidenced by female speaker W4 in Figure 5 below. As may be expected given the fronted T1 in her re-read, she is one of the 2 females who does not show perceptually salient accent change over time. Her accent remains as Cultivated in 2006 as it was in 1982.

One of the principal findings of Cox and Palethorpe (2001) was the lowering of /æ/ as a change occurring in Australian English. However in the current study 11 of the 12 speakers showed statistically significant raising in the vowel space of at least one monophthong, and for 6 speakers this included /æ/ (i.e. 3 of the elderly speakers, 2 of the females and 1 of the males). Only one female speaker (W1) showed non-significant but perceptually salient lowering of /æ/.

The phenomenon of raising was more striking for /e/, with 4 elderly, 2 female and 2 male speakers displaying significantly lower frequencies for F1 (i.e. raising in the vowel space). Figure 6 (below) illustrates the changes to /e/ between the original read and the re-read for each speaker. The arrows indicate the direction of shift, with the start point representing the average
Fig. 5: Vowel chart for female speaker W4 with her /æt/ diphthong superimposed on the monophthongal vowel space. Dotted lines indicate original read (1982) and solid lines the re-read (2006). ‘R’ denotes the re-read. All measurements are in Hz.

Fig. 6: All speakers’ average vowel midpoints for /æt/. Arrows indicate direction of shift between original and re-reads. W=female speakers, M=male speakers, E=elderly speakers. Measurements are in Hz.
F1/F2 measurements (taken at the vowel mid-point) for the original read, and the end points representing the re-read. Female speaker W1, who displayed lowering of /æ/ also shows non-significant lowering of /e/. Again she is the only speaker to do so.

This unexpected phenomenon of raising in the vowel space was also apparent in the diphthongs. Female speaker W2 displays statistically significant F1 raising for the first target of her /aɪ/ diphthong (see Figure 7 below), yet to the ear her accent does not appear to have changed over the 25-year period, that is, she does not appear to have shifted away from Cultivated towards General.

![Vowel diagram](image)

**Fig. 7:** Vowel chart for female speaker W2 with her /aɪ/ diphthong superimposed on the monophthongal vowel space. Dotted lines indicate original read (1980) and solid lines the re-read (2005). ‘R’ denotes the re-read. ‘X’ indicates the vowel space centroid. All measurements are in Hz.

Similarly to the production of the first target of /eɪ/ mentioned earlier, the location of the first target of /aɪ/ relative to /a:/ and /ɔ/ gives us a clue as to accent type. Speakers with Cultivated accents tend to produce T1 closer to /a:/ than /ɔ/, which is the case in both reads for female speaker W2 above. This is very clear for the original read of elderly speaker E2 (see Figure 8 below), perhaps not surprisingly so since in the 1950s the elderly speakers still had RP-like accents. However by the time of his re-read 54 years later he has shifted the production of his first target further back in the vowel space relative to /aɪ/, and upwards in the vowel space towards /ɔ/. This supports the definition of broader /aɪ/ relative to Cultivated given by Harring-
ton et al. (1997). Indeed, this speaker's accent has moved away from the obviously Cultivated sound, although not nearly far enough to be classed as General.

![Vowel chart for elderly speaker E2 with his /a1/ diphthong superimposed on the monophthongal vowel space. Dotted lines indicate original read (1951) and solid lines the re-read (2005). ‘R’ denotes the re-read. ‘X’ indicates the vowel space centroid. All measurements are in Hz.](image)

On the other hand male speaker M3 produces T1 for /a1/ closer to /i/ in both reads, and his accent could be described as General to Broad (see Figure 9 below). Similarly to female speaker W2, his accent does not appear to have changed over time.

Since representing the vowel space in this way can provide an indication of a speaker’s accent type when the descriptions provided by Harrington et al. (1997) are used as a reference, it can also throw light on any accent change that has taken place between recordings. Impressionistically, female speaker W3 (Figure 10 below) sounds Cultivated in 1989 but by 2005 she appears to have shifted towards a General accent in her /e1/ diphthong, and this is reflected in the (significantly) retracted first and second targets for the re-read, in comparison with the original.

Male speaker M1 (the only middle-aged male who sounds reasonably Cultivated in his original read but who has shifted firmly towards General by the time of his re-read) at first looks to have simply lowered the first target of /e1/ in the re-read relative to the original (see e1R in Figure 11 below), but when the location of T1 in relation to the entire vowel space is taken into account it can be seen that in fact he displays lowering and retraction in the
Fig. 9: Vowel chart for male speaker M3 with his /aɪ/ diphthong superimposed on the monophthongal vowel space. Dotted lines indicate original read (1984) and solid lines the re-read (2006). ‘R’ denotes the re-read. ‘X’ indicates the vowel space centroid. All measurements are in Hz.

Fig. 10: Vowel chart for female speaker W3 with her /eɪ/ diphthong superimposed on the monophthongal vowel space. Dotted lines indicate original read (1989) and solid lines the re-read (2005). ‘R’ denotes the re-read. ‘X’ indicates the vowel space centroid. All measurements are in Hz.
re-read, with T1 being produced closer to /aɪ/ in the re-read than in the original.

It would seem then that the initial auditory analysis and classification of these speakers’ accents has been able to be confirmed instrumentally. The results cited above appear to support the combined findings of the aforementioned researchers as regards the definitions of increasing broadness for /ei/ and /aɪ/ relative to Cultivated, and this despite the fact that citation form rather than connected speech data was examined. In the current data set, retraction alone, or in combination with either lowering for /ei/ or raising for /aɪ/, would seem to be the key to accent shift for both these diphthongs. Regarding the question of whether the elderly speaker group would display the greatest change over time, quantitatively the elderly speakers do show a consistently higher percentage of monophthong and diphthong targets (with F1 and F2 measured separately) where the shifts within the vowel space between reads are statistically significant (see Tables 1 and 2 below). It should be noted firstly that these results include all the monophthongs and diphthongs analyzed, that is /i:/, e, æ, ə, ə:, ɔ, ʊ, ɛɪ, ɑɪ, ɑʊ, ɔʊ/. Secondly, /i:/ is treated here as a diphthong because of its onglide characteristic. The percentage of significant change for the elderly speakers’ monophthong targets (55.3%) is considerably higher than for both the females (25%) and the males (33.9%). The difference is not as great for the diphthong targets

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**Fig. 11:** Vowel chart for male speaker M1 with his /ei/ diphthong superimposed on the monophthongal vowel space. Dotted lines indicate original read (1979) and solid lines the re-read (2005). ‘R’ denotes the re-read. ‘X’ indicates the vowel space centroid. All measurements are in Hz.
(33.7% for the elderly speakers as opposed to 25% for the females and 17.5% for the males).

<table>
<thead>
<tr>
<th>Speaker group</th>
<th>Male</th>
<th>Female</th>
<th>Elderly</th>
</tr>
</thead>
<tbody>
<tr>
<td>m/th targets showing sig. change (F1 or F2)</td>
<td>19</td>
<td>14</td>
<td>31</td>
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<td>Total changes possible – m/ths</td>
<td>56</td>
<td>56</td>
<td>56</td>
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<tr>
<td>% of m/ths showing sig. change</td>
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<td>25.0</td>
<td>55.3</td>
</tr>
<tr>
<td>d/th targets (F1 or F2) showing sig. change</td>
<td>14</td>
<td>20</td>
<td>27</td>
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<tr>
<td>Total changes possible – d/ths</td>
<td>80</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>% of d/th targets showing sig. change</td>
<td>17.5</td>
<td>25.0</td>
<td>33.7</td>
</tr>
</tbody>
</table>

**Table 1:** Numbers of monophthong and diphthong targets showing statistically significant change between original recording and re-read, represented as a percentage of the total number of targets which potentially could show change. Note for the diphthongs F1 and F2 are measured independently of each other i.e. each target can have up to 2 significant changes.

As can be seen in Table 2 below, when the monophthongs and diphthongs are added together the elderly speakers clearly show greater significant change (42.6% of the 136 F1 and F2 targets which potentially could show change) compared with the females (25%) and males (24.2%), and this despite the auditory analysis indicating less change for the elderly speaker group than either of the others.

<table>
<thead>
<tr>
<th>Speaker group</th>
<th>Male</th>
<th>Female</th>
<th>Elderly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total m/th + d/th targets showing sig. change</td>
<td>33</td>
<td>34</td>
<td>58</td>
</tr>
<tr>
<td>Total changes possible for m/th + d/th targets</td>
<td>136</td>
<td>136</td>
<td>136</td>
</tr>
<tr>
<td>% of m/th + d/th targets showing sig. change</td>
<td>24.2</td>
<td>25</td>
<td>42.6</td>
</tr>
</tbody>
</table>

**Table 2:** Total numbers of monophthong and diphthong targets (with F1 and F2 measured independently) showing statistically significant change between recordings, represented as a percentage of the overall total number of possible changes.

6. **Discussion**

One possible explanation for these findings may be that most of the shifts within the vowel space for the elderly speakers are not those which would normally result in accent broadening. For example for the elderly speakers there is a considerably higher proportion of both monophthong and diphthong targets showing statistically significant raising only (i.e. the raising is not associated with lowering or retraction) than for the males or females.
Although these results are interesting, for several reasons they must be treated with caution. Firstly, as has been mentioned, movement within the vowel space must be looked at systemically rather than as individual targets in isolation. Secondly, change which is perceptually salient is not always reflected in the instrumental measurements (either due to an insufficient number of tokens for analysis which can influence the test results, or a result may be just outside the significance threshold). Thirdly, directional shift resulting in perceptually salient change for one speaker group may not produce similar results for another group due to the precise location of both F1 and F2 within the vowel space. A case in point is the F1 lowering of /i:/ for the elderly speakers. Three of the four show statistically significant lowering, but it is only perceptually salient for one of them, and even then it could not be said that the speaker has shifted out of the Cultivated accent category. On the other hand, for one member of the male speaker group whose F1 measurement for /i:/ in the original read is higher than the elderly speaker's in terms of Hz (i.e. it is lower in the vowel space), non-significant lowering for the re-read results in audible accent broadening. Further instrumental analyses are therefore currently being undertaken in an attempt to elucidate the above findings in different ways.

The unexpected incidence of F1 raising, however, remains a curious one. Several linguists have considered the physiological effects of ageing on the vocal tract as a factor in vowel variation (see Henton 1983; Harrington, Palethorpe and Watson 2000, 2005; Watson, Palethorpe and Harrington 2004; Harrington 2006). In addition, Bauer (1985) found lowering of F1 (i.e. higher F1 frequencies) in the connected speech of 3 RP-speakers re-recorded over a 20-year period, and he surmised this may be age-related. Since there was evidence of similar F1 lowering for /i:/ in 3 of the 4 elderly speakers in the current study, Bauer’s findings prompted examination of the gerontological literature. Endres, Bambach and Flösser (1971) found lower formant frequency values (i.e. F1 raising) in the same 6 male and female speakers over a period of between 13 and 15 years for monophthongs including /i:/, /e/ and /æ/ and the diphthong /æu/. Linville and Rens (2001) found lowering of average formant values across gender from young adulthood to old age, which they suggest might result from supraglottic vocal tract lengthening caused by lowering of the larynx. Linville and Fisher (1985) also found significant lowering of F1 and F2 for sustained phonation of /æu/ in elderly female speakers aged between 70 and 80, compared with younger speakers aged between 25 and 35. Liss, Weismer and Rosenbek (1990) noted that for /u/, /a:/, /æ/ and /i/ the formant frequencies of 14 very old males (i.e. over the age of 87) demonstrated a centralizing tendency towards the formant measurements normally associated with /æ/. Finally Rastatter and Jacques (1990) and Rastatter, McGuire, Kalinowski and Stuart (1997) showed that F1 values for /i:/ were significantly higher in elderly male speech
than those of their younger counterparts in the environments of isolated vowel production and carrier sentences respectively. Thus when the F1 raising identified in the current study (as well as F1 lowering for /i:/ in the case of the elderly males) is looked at in light of the above findings, it may be possible that both are a function of the physiological changes associated with the ageing process. For example elderly speaker E2’s vowel chart (see Figure 8 above) shows evidence of shift between recordings which would support several of the findings cited here, such as raised /e/ and /a:/, and lowered /i:/ Overall the vowel space created by his re-read (solid black line) appears to have ‘shrunk’ in comparison with the original read, with the majority of the monophthongs moving in towards the centroid (i.e. centralizing in the manner described by Liss et al. (1990)). It would therefore appear that despite the small numbers of speakers in the current study, all manifestation of shift within the vowel space between recordings should be carefully examined with the gerontological findings in mind.

7. **Intonation**

Finally, brief attention will be paid to intonation as a component of broadcast speech. As has been mentioned, Australia took quite some time to finally let go of England’s newsreading apron strings in terms of accent, but the concept of Australian linguistic ‘identity’ continues to evolve. Today the Australian viewer/listener is constantly exposed to American culture in a more intense way than ever before, with mobile technology, cable television and the Internet facilitating access to it even further. Sussex (1995: 3) claims Americanisms are ‘strongly represented in the communicative vocabulary of everyday Australian English’, citing No way, OK, Great! and You’re kidding as examples. But as yet there appears to have been no suggestion that American English intonation patterns are being imported into Australian speech. Indeed, Sussex (1989: 159) states: ‘intonation, rhythm, tessitura, vowel quality – all these remain apparently immune to North American infiltration’. At the same time he notes that Australian English has a ‘natural tendency […] to imitate dynamic, creative, prestige cultures’ (1995: 3). Media language would seem to be no exception, with set phrases such as up next and coming up after the break finding their way into almost all Australian commercial television news bulletins in recent years, no doubt imported along with the American talk show or breakfast television formats.

With the emphasis on station identity and the growing celebrity status of radio personalities, commercial FM radio news has moved much further than its AM counterpart towards the conversational style mentioned earlier. It is in FM news where we observe the greatest departure from the more ‘serious’ and impartial style of news delivery which continues to characterize the
newsmaine AM stations. The AM style (which derives from the original BBC model) does not include utterance-final rising tunes, and is principally characterized by continuative utterance-medial low rises, and utterance-final falling tunes suggesting completeness and finality (see Pierrehumbert and Hirschberg 1990).

Commercial FM news, on the other hand, is notable for its broad pitch range (especially in female speakers) and the variety of rising tunes it employs. In spontaneous speech a syntactically declarative utterance which is terminated with the same rising tune normally associated with questioning has been labelled a 'statement high rise' or a 'high rising terminal' (HRT), and interpreted as either a floor holding device (see Horvath 1985; Guy et al. 1986) or as simply indicating there is more information to follow (see Pierrehumbert and Hirschberg 1990). The increasing informality of the Australian broadcast style has no doubt facilitated the transfer of the HRT from spontaneous speech into the more youth oriented FM news genre in particular. Currently it is common for FM newsreaders to terminate a sentence or a news item with continuative rising tunes including HRTs rather than a falling tune.

Standard Southern British English, General American English and Australian English are considered to have very similar intonational inventories, but different tune configurations may be employed by different varieties for the same purpose, an example being variation in the intonational contour of questions. Since there would currently appear to be anecdotal evidence but no quantitative study of ‘Americanized’ intonation in Australian speech, one of the aims of the present study is to determine whether tune types similar to those of American radio news can be identified in Australian FM news. The primary aim was to look at a distribution of tune types within their respective intonational systems, a particular focus being rising tunes and their associated functions. A secondary aim was to look at whether the ‘American sound’, if such is the case, may be associated with the sum of the intonational elements comprising utterances, rather than the phrase-final tunes alone. To date a corpus of 5 minutes each of one American radio newsreader and one Australian FM newsreader has been analyzed to compare the different tune types used, and it was found there was almost exactly the same number of rising tunes in each, which stylistically seemed to be employed for similar purposes such as announcing the weather report. For example in Figures 12 and 13 below the same phrase-final high onset (i.e. commencing high in the speaker’s pitch register) rising tunes can be identified for each speaker. The dotted lines trace the fundamental frequency or pitch.

Even more interesting was the similarity in the overall intonational template. As is evident in Figures 14 and 15 below, early in each utterance (on the words allegations and controversy highlighted in bold on the pitch trace)
Fig. 12: The F0 contour of the phrase-final high-onset high rise tune in the phrase *and speaking of storms* produced by the American speaker.

Fig. 13: The F0 contour of the phrase-final high-onset high rise tune in the phrase *checking Melbourne skies* produced by the Australian speaker.
there is a sharp rise in pitch to the highest part of each speaker’s range, followed by a fall within the same word. After a further slight fall the pitch is reset at approximately mid-level, from where it then continues to downstep before rising and falling to the lowest part of the speaker’s register at the final intonational phrase boundary. The phrase-final falls, while different in their realization (a rise-fall on a single word as opposed to a fall over two words), both rise from a point measuring approximately 200Hz in the speaker’s pitch range and reach a similar high point (307Hz for the Australian speaker and 320Hz for the American).

Fig. 14: The F0 contour of the utterance *after allegations they were trying to bribe the appeal judges*, produced by the Australian speaker.

Fig. 15: The F0 contour of part of the utterance *when it comes to the controversy surrounding his top aide Karl Rove*, produced by the American speaker.

To the ear these 2 phrases sound very alike, yet none of the individual features comprising each utterance could be described as inherently ‘American’. The speakers are simply using the same highly stylized intonational
devices for informational focus, which together create a similar auditory impression.

The ‘global’ newsreading style which initiated in the US is characterized by the use of hyperaccentuation, many and varied phrase-final rising tunes and an exaggerated pitch range, resulting in the overuse of focal prominence (such as in the words allegations and controversy). These features are also part of ordinary Australian discourse, but in news they are more frequent and more extreme, probably because time is limited and competition for audience attention is fierce. Certainly Australia has been importing American radio and television formats including news and current affairs for years, exposing consumers to the increasingly informal newsreading style which accompanies them, but whether it is in the process of ‘Americanizing’ news discourse is debatable. Perhaps Australian FM newsreaders are adopting aspects of an American model, either consciously or unconsciously, for the ‘hype’ factor which they perceive to be innovative or prestigious.

8. Conclusion

To conclude, the BBC model of radio news broadcasting that Australia adopted 80 years ago has since splintered into a range of newsreading styles in radio and television which continue to evolve, along with general change taking place in society. The RP accent that accompanied the model has been subject to the same social influences, to the point where it now exists only in media archives. The closest living relative of RP in Australian English (i.e. the Cultivated accent) seems destined to suffer the same fate, at least in the domain of news, since the only remaining speakers seem to be a handful of women in television who are over the age of 40. All other presenters now speak with a General or even Broad accent. It is very probable that the retirement of these women will see the disappearance of Cultivated from Australian airwaves forever. It will be interesting to see what the eventual outcome will be in terms of intonation – although high rising terminal and other rising tunes have not yet migrated into the more conservative medium of television news, stylistically within another decade or two the situation could be quite different.

Since Australian society is by nature less formal than its British ancestor, Australian broadcasters will no doubt continue to be susceptible to the types of news formats which are more conversational in style, and these are likely to be American. However, despite the fact that the stylistic parameters of Australian newsreading are being defined outside the country, this has not yet resulted in a loss of the clearly distinguishable Australian accent amongst presenters. For the time being the only exception seems to be commercial FM radio news, where the focus seems to have shifted somewhat from
content to style, allowing a vaguely ‘American sounding’ intonation pattern into the mix. A story to be continued, as they say.

9. References


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