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Australian English is a regional dialect of English which shares its phonemic inventory with Southern British English through the historical connection with the dialects of the British Isles (in particular London) in the late 18th and early 19th centuries (Cochrane 1989, Yallop 2003, Leitner 2004). Speakers of present-day Australian English are typically those who are born in Australia or who immigrate at an early age when peer influence is maximal.¹ Such speakers fall into three major dialect subgroups: Standard Australian English, Aboriginal English and Ethnocultural Australian English varieties. Standard Australian English (SAusE) is the dominant dialect and is used by the vast majority of speakers. It is a salient marker of national identity, and is used in broadcasting and in public life. The Aboriginal and Ethnocultural varieties are minority dialects allowing speakers to express their cultural identity within the multicultural Australian context (Cox & Palethorpe 2006, Clyne, Eisikovits & Tollfree 2001).

The purpose of this paper is to provide a description of the main features of SAusE. Like all spoken dialects, sociodemographically and stylistically significant accent variation is present in the community. Such variation is chiefly associated with vowel realisation, however, connected speech processes and suprasegmental characteristics also play an extremely important role (see for instance, Ingram 1989, Tollfree 2001). The specific detail of these sociostylistic variations present in the dialect will not be offered here as much more work is still required before a solid empirical picture of such variation can be presented. The accent variation that is present amongst speakers of SAusE has traditionally been described with reference to a continuum of broadness, ranging from the most overtly local form (Broad) through to that which bears some resemblance to Received Pronunciation of British English (Cultivated) (Mitchell & Delbridge 1965). Over the past 40 years, there has been a gradual movement of speakers away from the extremities of this broadness continuum (Horvath 1985) reflecting recent sociocultural change in Australia including post-colonial independence and sociopolitical maturity. The majority of younger speakers today prefer to select speech patterns from the central or General part of the broadness continuum (Harrington, Cox & Evans 1997).

¹ The term 'Australian English' has previously been used more restrictively to describe the dialect of the primarily Anglo-Celtic population of Australian speakers (Cox 1996). In this paper we take a more inclusive approach and use the term Australian English more liberally to apply to the dialects of all speakers who are born in and grow up in Australia. The term 'Standard Australian English' is considered a sub-class of Australian English and refers to the majority dialect which contrasts with the other Australian English dialects: Aboriginal English and Ethnocultural varieties.

By global standards, SAusE displays relative regional homogeneity which may be the result of quite recent white settlement but may also reflect national identity as a stronger psychosocial influence than regional affiliation (Blair 1993). Recent analyses have, however, revealed some minor regionally distributed contextual variation such as the probabilistic occurrence of vocalised /l/, pre-lateral and pre-nasal vowel modifications, and certain other vowel characteristics (see, for instance, Oasa 1989; Cox & Palethorpe 1998, 2004; Horvath & Horvath 2002; Palethorpe & Cox 2003; Butcher 2006). The speaker on the accompanying recorded example which forms the basis of the transcription below is a 31-year-old male who was born in Victoria but now lives in Sydney.

Consonants

	Bilabial	Labio-dental	Dental	Alveolar	Post-alveolar	Palatal	Velar	Glottal
Plosive	p b			t d			k g	
Affricate					tʃ dʒ			
Nasal	m			n			ŋ	
Fricative		f v	θ ð	s z	ʃ ʒ			h
Approximant				r		j	w	
Lateral approximant				l				

p	pie	t	tie	k	kite
b	buy	d	die	g	guy
m	my	n	nigh	ŋ	hang
f	fie	θ	thigh	h	high
v	vie	ð	thy	tʃ	chin
		s	sigh	dʒ	gin
		z	zoo	ʃ	shy
w	why	r	rye	ʒ	azure
		l	lie	j	you

Consonantal features have been studied far less rigorously than vowel features (but see Ingram 1989 and Tollfree 2001). This is because the consonants display many of the same variations present in other major dialects of English. There are voicing distinctions between stops, affricates and fricatives (except /h/). Syllable-initial voiceless stops are aspirated before vowels in stressed syllables. Voiceless stops are unaspirated when following /s/ in the same syllable. In unstressed and in coda contexts, voiceless stops are usually only weakly aspirated and phase-final codas are often unreleased (Ingram 1989). However, there is variation in the degree of aspiration with some speakers inclined to quite strongly aspirate voiceless stops in these contexts, and spirantisation with little closure may also occur, particularly in formal style (Tollfree 2001). Nasal and lateral release of stops preceding homorganic nasals and laterals within or across word boundaries is usual. Syllable-final /t/ preceding an obstruent is typically unreleased. Flapping and glottal reinforcement² of alveolar stops occur

² We use the term glottal reinforcement to refer to the addition of a glottal gesture along with the supralaryngeal gesture such that the supralaryngeal gesture is not obscured. It does not refer to the loss of supralaryngeal gesture and apparent replacement with a glottal stop (glottalling). We acknowledge that the two processes may be from different parts of a continuum involving the relative timing of laryngeal and supralaryngeal gestures.

variably according to stylistic requirements or speaker-specific idiosyncratic patterns and are not usually obligatory (Ingram 1989). Flapping of /t/ and /d/ is tolerated in intervocalic position word-internally preceding weak vowels (as in *butter* [bʊrə], *water* [wɔːrə], *ladder* [læɾə]) and across word boundaries (as in *get out* [geræʊt], *ride on* [raɪərɔn]) (Evans 2003). Flaps may also occur for /t/ before syllabic /l/ and /m/ (as in *cattle* [kʰætɫ], *bottle* [bɔɾɫ], *bottom* [bɔɾm]) and before unstressed vowels following /n/ (Tollfree 2001). Glottal stops may function as allophones of /t/ (glottalling) in syllable-final position before syllabic /n/ and other non-syllabic sonorants (for example, *button* [bʊɾŋ], *cotton* [kʰɔɾŋ], *butler* [bʊɾlə], *light rain* [laɪt.ræɪn] or *not now* [nɔɾnæʊ]) (Tollfree 2001). It is very unusual for glottal stops to replace /t/ intervocalically, before syllabic /l/ or /m/, or in pre-pausal position. Glottal reinforcement (glottalisation) of voiceless stops is, however, often found, particularly in syllable-final non-pre-vocalic environments, and is commonly accompanied by laryngealisation (Tollfree 2001). For unreleased phrase-final stops, voicing is determined primarily by preceding vowel duration because voiced stops do not typically display periodicity during closure except in intervocalic environments. When final stops are released, the separate closure and burst durations of voiceless stops are greater than for voiced stops (Cox & Palethorpe 2006).

/l/ is realised as [ɫ] in pre-pausal and pre-consonantal positions and is often dark before a morpheme boundary preceding a vowel. There is some suggestion that AusE onset /l/ is more dorsal (i.e. darker) than other varieties of English (Wells 1982) although this is yet to be empirically tested. /l/ vocalisation may occur for some speakers in pre-consonantal, syllable-final, and syllabic contexts in words like *milk* [mɪɫk], *hurl* [hɜ:ɫ] and *noodle* [nʊ:ɫ] (Borowsky & Horvath 1997, Borowsky 2001). Vocalisation has the effect of reducing the contrast between certain V and VC syllables such that *howl* [hæɫ] and *how* [hæɫ] may become homophonous (Palethorpe & Cox 2003). There is also a regionally distributed pattern for this variant with proportionately more speakers from South Australia using vocalised /l/ (Ingram 1989, Horvath & Horvath 2002).

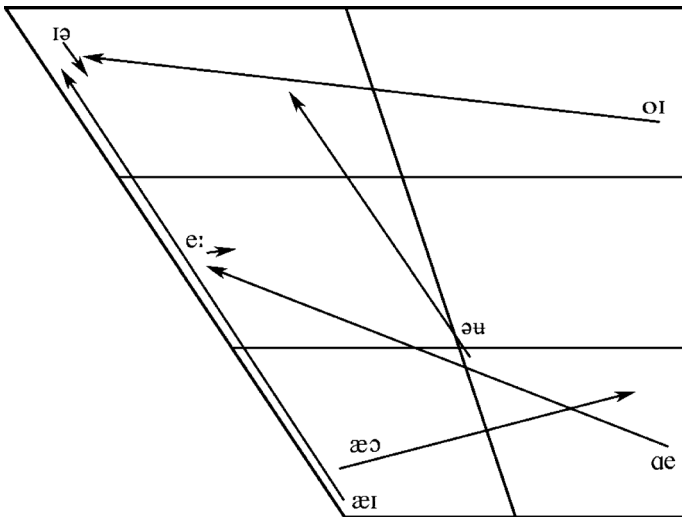
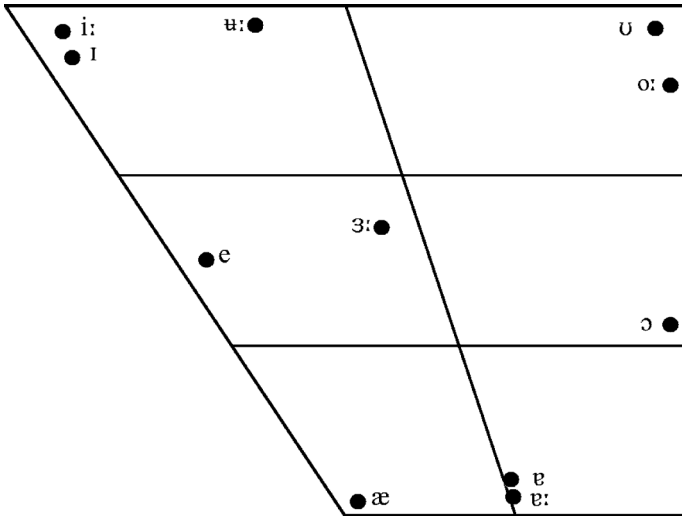
The palatal approximant /j/ is present after coronals before /æ:/ (as in *new* [nju:]) and when /j/ occurs in alveolar stop or fricatives clusters, yod coalescence typically results such that *tune* [tjū:n] → [tjū:n], *dune* [djū:n] → [dʒū:n] and *assume* [əsʃjū:m] → [əʃjū:m]. Palatalisation may vary stylistically for some speakers and may also act as a social marker (Horvath 1985).

/r/ is realised as an alveolar approximant [ɹ] with a voiceless allophone occurring in clusters initiated by a stop or fricative. Approximants are generally devoiced following voiceless stops and fricatives but devoicing does not occur when stops are preceded by /s/ (for instance, *prey* [pɹæe], but *spray* [spɹæe]). /tr/ and /dr/ clusters are typically affricated. SAusE is non-rhotic as it does not contain pre-pausal or pre-consonantal /r/. However, in connected speech, linking /r/ (*far out* [fæ: æɫ] → [fæ:ɹæɫ]) is typical, both within words and across word boundaries. Intrusive/epenthetic /r/ (*draw it* [dɹɔ: ət] → [dɹɔ:ɹət], *draw* [dɹɔ:] → *drawing* [dɹɔ:ɹɪŋ]) is also commonly found. There may be a recent change in progress towards repressing /r/ sandhi as part of a more generalised development affecting the liaison rules that have typically been used for hiatus-breaking of two separate adjacent vowels. Such repression of sandhi involves the substitution of a glottal stop for previously common liaison elements. For example, *the egg* [ði:(j)eg] → [ðəʔeg], *to eat* [tʊ:(w)ɪt] → [təʔɪt]. No empirical investigation of this phenomenon in SAusE has occurred to date.

Vowels

Harrington, Cox & Evans (1997)	Mitchell (1946)	Example
i:	i	bead
ɪ	ɪ	bid
e	ɛ	bed
æ	æ	bad

ɜ:	a	hard
ɚ	ʌ	bud
ɔ	ɒ	pod
oɪ	ɔ	board
ʊ	ʊ	good
ɝ:	u	bood
ɜ:	ɜ	bird
æɪ	eɪ	bayed
ɑe	aɪ	bide
æɔ	aʊ	bowed/loud
əʊ	oʊ	bode
oɪ	ɔɪ	Boyd
ɪə	ɪə	beard
e:	ɛɛ	bared/cared



The symbols in vowel-space figures and in the left-hand column of the vowel table are from Harrington et al. (1997). This is a revised symbol set for SAusE which was developed to indicate phonetic properties of the vowels more accurately than the earlier system recommended by Mitchell (1946). The Mitchell (1946) transcription system for vowels more strongly reflects a British rather than an Australian standard due to its historical origins (Clark 1989, Durie & Hajek 1994, Harrington et al. 1997, Ingram 1995). The revised symbol set adheres to the IPA principle of selecting symbols to represent phonemes that are closest to the corresponding cardinal vowels. It also allows for a more representative picture of SAusE vowel sounds and can provide a solid basis for a detailed phonetic transcription of the variations that are present in the speech community. No detail of the range of phonetic vowel variations present in SAusE is given as this is beyond the scope of the illustration; however, according to Harrington et al. (1997), Broad speakers differ from General speakers primarily with respect to the first element of the diphthongs. In particular, Broad speakers have a more retracted first element of the /æɪ/ vowel (e.g. *high*) and a more fronted and raised first element of the /æɔ/ vowel (e.g. *how*). Another vowel that varies systematically with broadness is /i:/, as in *heed*. This vowel typically displays onglide (delayed target) in SAusE giving it a diphthongal quality [ʰi:], however the extent and duration of the glide varies considerably and is generally more pronounced amongst the broader speakers (Harrington et al. 1997). In SAusE, /i:/ occurs in word-final position in *city* [sɪtɪ:]/[sɪrɪ:] and *happy* [hæpi:].

Short vowels are approximately 60% the length of long vowels and diphthongs in standard /hVd/ contexts (Cox 2006). Length is explicitly indicated in the transcription system used above as it has contrastive status for some pairs of vowels (for example, /e:/ – /ɛ/ as in *cart* [kʰɛ:t] versus *cut* [kʰɛt] and /i:/ – /ɪ/ as in *bead* [bʰi:d] versus *bid* [bɪd], although this pair also has an additional onglide contrast present in /i:/ as discussed above). The loss of centring glide in many contexts for the centring diphthongs has also resulted in a length contrast between /e:/ – /ɛ/ as in *bared* [be:d] versus *bed* [bed] and /ɪ/ – /ɪə/ as in *bid* [bɪd] versus *beard* [bɪəd]. /ɪə/ (*hear* [hɪə]) and /e:/ (*hair* [he:]) have starting points similar to /ɪ/ and /ɛ/, respectively, and, for younger speakers, are often long monophthongs (particularly in closed syllables) or diphthongs with a variable centring glide. It is not uncommon for /ɪə/ and /e:/ in open syllables to be produced as a disyllabic sequence incorporating a full vowel and an unstressed second syllable which has variable realisation often approaching [ɐ], for instance in *hear* [hɪ:ɐ] (Harrington et al. 1997). The centring diphthong /ʊə/, previously occurring in *pure* and *sure*, is infrequently found in the speech of young people and has therefore not been included in the list of phonemes. Words such as *pure* are typically produced with a disyllabic structure [pʰjʊ:ɐ], and /o:/ is used in words like *sure* [ʃo:] resulting in a homophone with *shore* [ʃo:]. There are some, mainly older speakers, who do continue to use /ʊə/.

Schwa has not been indicated owing to its contextual phonetic variability. However, it occurs as the most common vowel in unstressed syllables and does not functionally contrast with /ɪ/ in this context. Words such as *rabbit* [ræbət], *carrot* [kʰæɾət], *roses* [rəʊzəz] and *Rosa's* [rəʊzəz] all include schwa in the second syllable.

Vowel qualities displayed in the formant plots in figures 1–3 are based on observations of five young adult males from Sydney. The monophthong plot is from vowels in the /hVd/ context and the diphthong plots are from vowels in the /hV/ context. /hV/ has been used for diphthongs to prevent the potential coarticulatory effect of /d/ on the second target.

Various pre-nasal and pre-lateral vowel effects are common in SAusE. /əʊ/ as in *coat* [kʰəʊt] becomes [ɔ] before velarised /l/ (*coal* [kʰɔɔl]). Therefore, words like *dole* [dɔɔl] and *doll* [dɔɔl] contrast primarily by vowel duration rather than quality (Palethorpe & Cox 2003). Retraction of /ɹ:/ often occurs before [ɹ] so that *pull* [pʰɹɹ] and *pool* [pʰɹ:ɹ] become differentiated primarily by length whereas in non-lateral contexts such as *who'd* [hʊ:d] and *hood* [hʊd] there is an additional fronting contrast. The retraction of /ɹ:/ before /l/ is considered a regionally distributed feature in SAusE (Oasa 1989), but recent change in progress has seen an increased use of this variant among younger speakers generally, thereby reducing the strength of the variant as a regional marker.

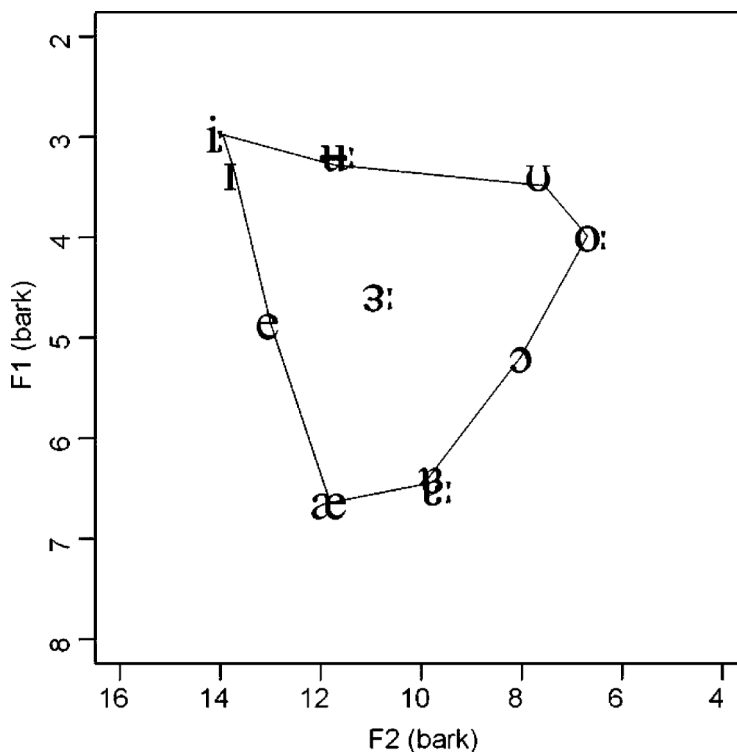


Figure 1 Monophthong vowel formant plot based on citation form /hVd/ words from five male speakers.

There is a further regionally distributed effect for /e/ before [ɪ] which is lowered so that *hell* and *Hal* become homophonous for some speakers from Victoria (Cox & Palethorpe 2004). Epenthetic schwa occurs when long high front vowels and front rising diphthongs occur before velarised or vocalised /l/, as in words like *hile* [hæe^əɪ] and *heel* [h^ɪi^əɪ] (Palethorpe & Cox 2003). In pre-nasal environments, variable raising of /æ/ (and the first element of /æɔ/) may occur such that *can* [k^hæ̃:n] approaches *Ken* [k^hɛ̃:n] but retains the length of the lower vowel (Cox, Palethorpe & Tsukada 2004).

Suprasegmentals

There has been much interest in the increasing occurrence over the past 30 years of the intonational device known as the high rising terminal (HRT) or tune in Australian English. The HRT is considered a sociophonetically marked intonational pattern associated with declarative utterances which has a particular collaborative function in discourse structure. It may be present in the speech of both males and females (McGregor 2006) but it is important to recognise that HRT users also employ standard falling and fall-rise tunes (Fletcher & Harrington 2001, Fletcher, Stirling, Wales & Mushin 2002, Fletcher, Grabe & Warren 2004).

Transcription of recorded passage

Broad phonemic and narrow phonetic transcriptions are provided. The broad transcription uses vowel symbols from the revised transcription system of Harrington et al. (1997). The narrow transcription provides more detail of allophonic variation and connected speech processes that occur in Standard Australian English.

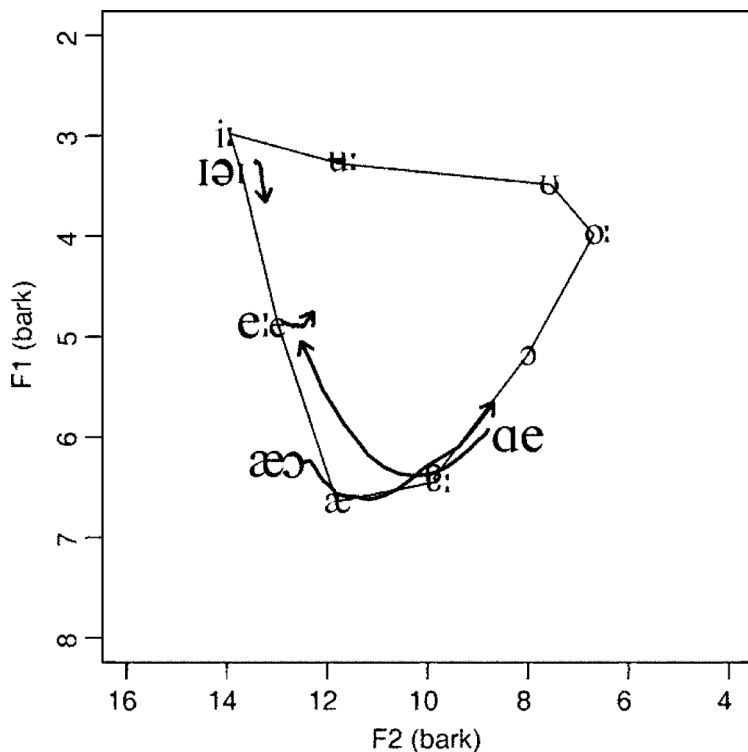


Figure 3 Diphthong formant trajectory plot from target 1 to target 2 for the vowels /æɔ/, /eɪ/, /ɪə/ and /ə:/ superimposed onto the monophthong vowel space. Values are from citation form /hV/ words from five male speakers.

ðə 'tɹævvlə 'tʰʊkʰ,ɔf hɪz 'kɫəʊk'. æn 'səʊ ðə 'no:θ 'wɪnd wəz ə'blædʒ tə kɔŋ'fes
 ðəʔ ðə 'sɛn wəz ðə 'stɹɪŋgəɪ əv ðə 'tʰɪ:

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References

- BLAIR, D. (1993). Australian English and Australian identity. In Schultz, G. (ed.), *The Languages of Australia* (Occasional Paper, Australian Academy of the Humanities Symposium 14), 62–70. Canberra: Highland Press.
- BLAIR, D. & COLLINS, P. (eds.) (2001). *Varieties of English Around the World: English in Australia*. Amsterdam: Benjamins.
- BOROWSKY, T. (2001). The vocalisation of dark l in Australian English. In Blair & Collins (eds.), 69–88.
- BOROWSKY, T. & HORVATH, B. (1997). L-vocalisation in Australian English. In Hinskens, F., van Hout, R. & Wetzels, W. L. (eds.), *Variation, Change and Phonological Theory*, 101–123. Amsterdam: Benjamins.

- BUTCHER, A. (2006). Formant frequencies of /hVd/ vowels in the speech of South Australian females. *Proceedings of the Eleventh Australasian International Conference on Speech Science and Technology*, 449–453. <http://www.assta.org/sst/2006/> (accessed 25 April 2007).
- CLARK, J. E. (1989). Some proposals for a revised phonetic transcription of Australian English. In Collins & Blair (eds.), 205–213.
- CLYNE, M., EISIKOVITS, E. & TOLLFREE, L. (2001). Ethnic varieties of Australian English. In Blair & Collins (eds.), 223–238.
- COCHRANE, G. R. (1989). Origins and development of the Australian accent. In Collins & Blair (eds.), 176–186.
- COLLINS, P. & BLAIR, D. (eds.) (1989). *Australian English: The Language of a New Society*. St Lucia: University of Queensland Press.
- COX, F. M. (1996). *An Acoustic Study of Vowel Variation in Australian English*. Ph.D. dissertation, Macquarie University, Sydney.
- COX, F. M. (2006). The acoustic characteristics of /hVd/ vowels in the speech of some Australian teenagers. *Australian Journal of Linguistics* 26, 147–179.
- COX, F. M. & PALETHORPE, S. (1998). Regional variation in the vowels of female adolescents from Sydney. *Proceedings of the 5th International Conference on Spoken Language Processing, ICSLP*, Sydney, 30 November–4 December. 4 pages, CD_ROM.
- COX, F. & PALETHORPE, S. (2004). The border effect: vowel differences across the NSW/Victorian border. In Moskovsky, C. (ed.), *Proceedings of the 2003 Conference of the Australian Linguistics Society*. <http://www.als.asn.au/> (accessed 5 March 2007).
- COX, F. & PALETHORPE, S. (2006). A preliminary acoustic phonetic examination of Lebanese Australian English. In Cupples, L. (ed.), *Abstracts of the 15th Australian Language and Speech Conference*. *Australian Journal of Psychology* 58, 5.
- COX, F., PALETHORPE, S. & TSUKADA, K. (2004). One hundred years of accent change in Australian English. Presented at the 10th Australian International Conference on Speech Science and Technology, Sydney, 6–10 December.
- DURIE, M. & HAJEK, J. (1994). A revised standard phonemic orthography for Australian English vowels. *Australian Journal of Linguistics* 14, 93–107.
- EVANS, Z. (2003). *Hyperspeech and Hypospeech in Multiple Dialects of English: An Acoustic and Articulatory Study*. Ph.D. dissertation, Macquarie University, Sydney.
- FLETCHER, J., GRABE, E. & WARREN, P. (2004). Intonational variation in four dialects of English: the high rising tune. In Sun-Ah Jun (ed.), *Prosodic Typology: The Phonology of Intonation and Phrasing*, 390–409. Oxford: Oxford University Press.
- FLETCHER, J. & HARRINGTON, J. (2001). High-rising terminals and fall-rise tunes in Australian English. *Phonetica* 58, 215–229.
- FLETCHER, J., STIRLING, L., WALES, R. & MUSHIN, I. (2002). Rising intonation and dialogue acts in Australian English. *Language and Speech* 45, 229–254.
- INGRAM, J. (1989). Connected speech processes in Australian English. In Bradley, D., Sussex, R. D. & Scott, G. K. (eds.), *Studies in Australian English*, 21–49. Bundoora: Department of Linguistics, La Trobe University Victoria for the Australian Linguistic Society.
- INGRAM, J. (1995). One step forward and two backwards: reflections on Durie and Hajek's proposed revisions to the phonemic transcription of Australian English vowels. *Australian Journal of Linguistics* 15, 215–239.
- HARRINGTON, J., COX, F. & EVANS, Z. (1997). An acoustic phonetic study of Broad, General and Cultivated Australian English vowels. *Australian Journal of Linguistics* 17, 155–184.
- HORVATH, B. (1985). *Variation in Australian English: The Sociolects of Sydney*. Cambridge: Cambridge University Press.
- HORVATH, B. & HORVATH, R. (2002). The geolinguistics of /l/ vocalisation in Australia and New Zealand. *Journal of Sociolinguistics* 6, 319–346.
- LEITNER, G. (2004). Beyond Mitchell's views on the history of Australian English. *Australian Journal of Linguistics* 24, 99–125.

- MCGREGOR, J. (2006). *High Rising Tunes in Australian English*. Ph.D. dissertation, Macquarie University, Sydney.
- MITCHELL, A. (1946). *The Pronunciation of English in Australia*. Sydney: Angus and Robertson.
- MITCHELL, A. G. & DELBRIDGE, A. (1965). *The Pronunciation of English in Australia*. Sydney: Angus and Robertson.
- OASA, H. (1989). The phonology of current Adelaide English. In Collins & Blair (eds.), 271–287.
- PALETHORPE, S. & COX, F. M. (2003). Vowel modification in pre-lateral environments. Poster presented at the International Seminars on Speech Production, Sydney, 7–10 December.
- TOLLFREE, L. (2001). Variation and change in Australian English consonants. In Blair & Collins (eds.), 45–67.
- WELLS, J. (1982). *Accents of English: Beyond the British Isles*. Cambridge: Cambridge University Press.
- YALLOP, C. (2003). A. G. Mitchell and the development of Australian pronunciation. *Australian Journal of Linguistics* 23, 129–141.