UNIVERSITY OF JYVÄSKYLÄ

VARIATION IN AUSTRALIAN ENGLISH CLOSING DIPHTHONGS

A Pro Gradu Thesis
by

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Tutkielman tarkoituksena on pyrkiä ymmärtämään australianenglannin suppenevien diftongien vaihtelua kahdessa eri kielenopetusmateriaalissa. Aineisto koostuu kahdesta australianenglannin kuullunymmärtämismateriaalista: suomalaiselle radioyleisölle suunnatusta *Down under: talking about Australia and New Zealand* -ohjelmasarjasta (tästä eteenpäin *Down under*) ja Australiaan muuttaville suunnatusta *Coffee break: a course in understanding authentic Australian casual conversation* -opetuspaketista (tuonnempana *Coffee break*). Tutkielmassa vastataan seuraaviin kysymyksiin: Miten diftongit vaihtelevat näissä oppimateriaaleissa? Mitä eroja diftongien vaihtelussa on näiden oppimateriaalien välillä? Miten aiemmassa tutkimuksessa kuvattu sosiolingvistinen, alueellinen ja tyylillinen vaihtelu ilmenee näissä materiaaleissa?

Lähtökohtana tutkimukselle ovat australianenglannin diftongien variaation tutkimus, sosiolingvistiikka sekä tyylillisen vaihtelun tutkimus.

Tutkin australianenglannin keskeisen sosiolingvistisen muuttujan, suppenevien diftongien, vaihtelua kahdessa eri kielenopetusmateriaalissa pyrkien ymmärtämään kahdeksan puhujan puheessa esiintyvää diftongien vaihtelua aiemman sosiolingvistisen ja australianenglannin diftongien variaation tutkimuksen tarjoamilla välineillä. Teoriaosassa luon katsauksen toisaalta australianenglannin vokaalisysteemiin ja diftongien foneettisiin ilmenemismuotoihin ja toisaalta foneettisen variaation kanssa korreloiviin kielenulkoisiin taustamuuttujiin, australianenglannin sosiolingvistiseen tutkimukseen ja muutamaan sosiolingvistiseen teoriaan joita ei ole sovellettu australianenglantiin.

Omassa tutkimuksessani pyrin vastaamaan kysymyksiin miten ohjelmien diftongit eroavat toisistaan, miten diftongit vaihtelevat materiaalien sisällä sekä miten aiemmassa tutkimuksessa kuvattu sosiolingvistinen, alueellinen ja tyylillinen vaihtelu ilmenee tässä aineistossa. Aineiston pienuuden vuoksi en tutki sosiolingvististä vaihtelua kvantitatiivisen sosiolingvistiikan menetelmin vaan etsin aineistosta toisaalta prototyyppisiä esimerkkejä ja toisaalta poikkeuksia aiemmassa tutkimuksessa kuvatusta vaihtelusta. Näin tutkimus kuvittaa ja havainnollistaa aiempaa kvantitatiivista tutkimusta. Lopuksi käsittelen kutakin puhujaa erikseen: millaisia puhujia materiaaleissa on ja millaisia diftongeita kukin tutkittavista puhujista tuottaa.

Tutkimuksesta ilmeni, että suomalaiselle radioyleisölle tarkoitetussa ohjelmassa oli useammanlaisia ja eksoottisempia diftongeja kuin maahanmuuttajille tarkoitetussa materiaalissa. Sosiolingvistisistä taustamuuttujista eroa selittää osittain alueellinen vaihtelu: Down underissa maalaismiehet käyttivät maalaismiehille tyypillisiä murteellisia diftongeja mutta Coffee breakin nuoren sydneyläisen miehen diftongit eivät olleet yhtä murteellisia.

Osittain eroa selittää Down underin hyperkorrekti alempikeskiluokkainen naispuhuja jonka diftongit olivat ylivoimaisesti aineiston vähiten murteelliset. Hyperkorrektiuden lisäksi hänen diftonginsa saattoivat edustaa suomalaiselle haastattelijalle suunnattua ulkomaalaispuhetta tai vastareaktiota maalaisen aviomiehen diftongien murteellisuuteen radiohaastattelussa.

Asiasanat: sociolinguistic variation, stylistic variation, Australian English, diphthongs, acoustic measurement

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INTRODUCTION

To the British ear, the most noticeable indigenous characteristic of Australian English pronunciation are the diphthongs: they sound very broad. Also within Australian English, diphthongs are central phonetic variables. They undergo the largest sociolinguistic and stylistic variation and the broadness of the accent is usually judged from the broadness of the diphthongs.

Coffee break: a course in understanding authentic Australian casual conversation (hereafter *Coffee Break*) and *Down under: talking about Australia and New Zealand* (hereafter *Down Under*), two language courses based mainly on recorded material, claim to present distinctively Australian speech. They are produced by the New South Wales Adult Migrant Education Service and by the Finnish Broadcasting Company, respectively.

Down Under is intended for advanced learners of English listening to the radio or attending an adult language study group or a course of English at school. The objective of the series of educational language radio programmes is for the student to learn to understand the Australian and New Zealand varieties of English in spite of the differences from the British accent. The authors describe the language of the programmes as genuine, even though perhaps not quite easy at the first try. (Aho and al. 1988:2–3.)

Coffee Break is intended for "all learners of English in Australia who wish to understand the ordinary everyday spoken language of the average English speaking Australian". The cultural notes are intended for immigrants who come from a different society or culture or for people from ethnic minority groups within Australia. (Economou 1985b:v,x.) As the notes of language and culture provided in the accompanying booklet are in English – although in relatively simple English – quite a good knowledge of some variety of English is expected.

In the following, the variation of Australian English diphthongs in these language course materials will be studied: what are the diphthongs in them like? What are the differences in diphthong variation between the two materials? What does the sociolinguistic, regional and stylistic variation described in previous study look like in these materials? Finally, each of the speakers under study will be considered separately: what kind of diphthongs does each of them produce?

In the review of the literature, the phonetic quality of Australian English closing diphthongs will be studied, the general outlines of the Australian English

vowel system will be sketched, and previous study on sociolinguistic, regional, and stylistic variation of Australian English closing diphthongs will be reviewed.

In the experimental part of the present study, a sample of /ɪi/, /ɛɪ/, /aɪ/, /ʊu/, /oʊ/, and /aʊ/ by eight speakers featuring in the language course materials will be analyzed both auditorily and acoustically. To get an overview of the total variation of one diphthong, all the stressed-syllable occurences of the diphthong /ɛɪ/ will be studied auditorily in the speech of the same eight speakers.

REVIEW OF THE LITERATURE

1 VARIANTS OF THE AUSTRALIAN ENGLISH CLOSING DIPHTHONGS

In the study of Australian English pronunciation, the sounds which have received the most attention are the closing diphthongs. Generalizing broadly, the closing diphthongs of the most indigenous form of Australian speech have, with regard to the British English Received Pronunciation (RP), undergone two interrelated chain shifts, one of which affects /ɪi/, /ɛɪ/, /aɪ/, and /ɔɪ/ (as in the words *seat, state, site, toys*), the other shift affecting /ʊu/, /oʊ/, and /aʊ/ (as in *toot, toast, stout*). On a vowel chart where close vowels are at the top and front vowels to the left, the starting points of the former series of diphthongs have shifted counter-clockwise, whereas those of the latter series have shifted clockwise. (Wells 1982:256–257.)

In addition to Australian English, a diphthong shift of this type has been attested in Cockney, in many local accents of the south of England and the midlands and in New Zealand. Usually, in a shift like this, the vowel of the word *seat* shifts from [iː] to [eɪ] or [əi], the *state* vowel shifts from [eɪ] to [aɪ] or [ʌɪ] (where <ʌ> indicates a central half-open vowel quality), the *site* vowel shifts from [aɪ] to [ɑɪ], [ɒɪ], or [ɔɪ] and the *toys* vowel moves up from [ɔɪ] to [oɪ]. The [uː] vowel of *toot* has usually two competing directions of change: [əʊ] or [ʉː]. The *toast* vowel usually shifts from [oU] or [əʊ] to [ʌʊ], [œʊ], or [aʊ] and the *stout* vowel from [aʊ] to [æʊ], [æə], or [ɛʊ]. (Wells 1982:256–257.)

Also within Australian English, the closing diphthongs are the variables undergoing the greatest variation (Mitchell and Delbridge 1965:9). In the study of Australian English pronunciation, the qualities of these diphthongs have been used as a basis for a three-point social accents scale, because other features of pronunciation tend to cluster with the diphthong qualities (Horvath 1985:174). Usually the labels of the social accents are spelled with capital letters (implicating dialectological undertones): the Broad accent lies at the most indigenous end of the continua; Cultivated lies at the end nearest to the Received Pronunciation, with the starting points of the diphthongs minimally, if at all, shifted from the RP; and in the middle of the continuum, where an increasingly overwhelming majority of the speakers (if expressed in

dialectological terms) are (Horvath 1985:175), lies the General accent. (Mitchell and Delbridge 1965:33–35.) From the sociolinguistic and variational point of view, speakers of course are not constant in their use of a certain variety of diphthongs, whether Cultivated, General, or Broad, but the diphthongs vary proportionately according to several situational and stylistic factors (cf. Horvath 1985:75-77). This will be more thoroughly discussed in Chapter 2.3.

The phonological symbols used in the present study for the diphthong variables under study are shown in Table 1 below, together with some examples of phonological symbols used for Australian English and for the Received Pronunciation of British English in previous study. Mitchell and Delbridge's (1965) classical symbolization for Australian English understandably differs from, say, Wells's (1982) symbols for the RP, but there are some inconsistencies: they use the monophthongal symbols <i> and <u> for the vowels in the words *seat* and *toot*, respectively, even though they themselves report the monophthongal pronunciations [i] and [u] for /ɪi/ and /ʊu/ to be exceptional in Australian English (Mitchell and Delbridge 1965:82). Clark (1989) suggests a specifically Australian symbolization, but his symbols as well are unsystematic: they represent sometimes Broad, sometimes Cultivated pronunciation (cf. Tables 4 and 5 below in Chapters 1.2 and 1.3, respectively). In the present study, in order to avoid using symbols that do not communicate to a reader acquainted with the British English research tradition or symbolizing Australian English vowels with symbols of sounds that are exceptional in Australian English speech or do not belong to a consistent social or stylistic category, an average of the symbols for the Cultivated vowel qualities given in

Table 1. Phonological symbols used for the six vowel variables. Abbreviations used: RP = Received Pronunciation of British English, M&D = Mitchell and Delbridge, AE = Australian English.

(Wells 1982:xviii,596; Mitchell and Delbridge 1965:78–79; Clark 1989:210)

symbol used in the present study	as in the word	cf. Wells for RP	M&D for AE	Wells for AE	Clark for AE
/ɪi/	*seat*	/iː/	/i/	/iː/	/iː/
/ɛɪ/	*state*	/eɪ/	/ɛɪ/	/ʌɪ/	/æe/
/aɪ/	*site*	/aɪ/	/aɪ/	/ɑɪ/	/ae/
/ʊu/	*toot*	/uː/	/u/	/uː/	/ʉː/
/oʊ/	*toast*	/əʊ/	/oʊ/	/ʌʊ/	/əʉ/
/aʊ/	*stout*	/aʊ/	/aʊ/	/æʊ/	/æɔ/

Tables 4 and 5 below is used; the only exception is </ǫu/>, the diacritics of which are left out for the sake of clarity and simplicity of notation. The symbols obtained in this way are not far removed from those used by Mitchell and Delbridge (1965:78–79), nor are they undecipherable from the point of view of the British English research tradition. The /ɔɪ/ diphthong (as in the word *toys*) is excluded from the present study because it is low in frequency of occurence and because its variation attested in previous studies of Australian English is minimal (Mitchell and Delbridge 1965:84, Bernard 1970:122, Burgess 1969:243, Cochrane 1959:80).

All the six vowel variables mentioned above can be called diphthongs in most varieties of Australian English, if a diphthong is defined as a vowel in which there is a noticeable change in quality during the production of the sound (The encyclopedia of language and linguistics 1994:3069,5113). Thus for example the Australian English /ɪi/ has such a great onglide from a more central position (on an average, 38 per cent longer than all the rest of the sound) that the onglide, or at least the tolerance of it, has to be seen as part of its phonemic specification (Bernard 1970:118). The Australian English /ʊu/ is realized as a glide in isolated pronunciation (Burgess 1969:240–241) and involves word-finally (*zoo*) almost always a considerable glide (Oasa 1989:275–277). Preconsonantally (*hood, boot*), /ʊu/ is often monophthongal (Oasa 1989:273), although unusual shapes of spectrogram are not infrequent (Bernard 1970:118) and 15 per cent of the cases involve two fully stated targets (Bernard 1989:190,197).

The Australian English /ɪi/ and /ʊu/ thus do have monophthongal variants [i] and [ʉ], especially in such shortening environments as before a voiceless consonant plus vowel (Wells 1982:598) or in consciously Cultivated pronunciation (Mitchell and Delbridge 1965:82). Therefore they do not belong to the group of two-target sounds if these are defined as vowels which "cannot normally be identified from a steady-state utterance since each essentially involves phonetic colour which changes"; nevertheless, according to Mitchell and Delbridge, monophthongal pronunciations of /ɪi/ and /ʊu/ would be perceived as affected (Mitchell and Delbridge 1965:82). Among the closing diphthongs of Australian English, the two-target definition is fulfilled by /ɛɪ, aɪ, ɔɪ, au, ou/ (Bernard 1989:199). Even of the vowels of this group, /aɪ/ has a tendency towards monophthongization (Trudgill and Hannah 1982:18): only 32 per cent of the /aɪ/ measured by Bernard have got two targets (Bernard 1989:190,199).

In the following, I will look more thoroughly into the phonetic qualities of the above-mentioned six diphthong variables, first the forward-gliding series /ɪi/, /ɛɪ/, and /aɪ/, then the second, rounded, series of closing diphthongs, /ʊu/, /oʊ/, and /aʊ/. Because diphthong qualities are perceived in relation to the rest of the vowel system (Ladefoged 1967:113–114), some general tendencies of the Australian English simple vowels will be considered first.

1.1 The Australian English Vowel System in Relation to the RP One

In the following, variation in the simple vowels of Australian English will be discussed, as well as the differences between the British English Received Pronunciation and Australian English vowel systems. There are several reasons why the Australian English vowel system should be considered in relation to the RP vowels. First, it is unclear whether Australian English has got a standard of its own (Guy 1991:215,223–224); for example, Cultivated Australian English is usually said to differ from the values of Broad Australian English in the direction of the Received Pronunciation (Trudgill and Hannah 1982:17; Bradley 1989:261). It is possible that the highest prestige variant in Australia were still the RP (Ball and al. 1989:94) For a more thorough discussion of this question see below, Chapter 2.3.6.

Second, as the vowel system affects the perception of diphthong qualities (Ladefoged 1967:113–114), an understanding of the differences between the vowel systems of Australian English and of the Received Pronunciation is essential for the understanding of the differences between the diphthongs of Australian English and the RP. Third, in the study of Australian English diphthongs, it is not always clear which vowels are used as the point of reference for the phonetic values given: does the phonetic script indicate the values of the cardinal vowels or those of the Received Pronunciation or Australian English? Being aware of the differences, we know the possible sources of misinterpretation.

The phonological notation used for the simple vowels in the following will be that of Wells (1982); thus the only notational difference between the two accents will be in the vowel of the word *start*, which is written as </ɑ:/> in RP but </a:/> in Australian English (cf. Wells 1982:120,596–599). Following Wells's notation, the vowel of the word *debt* will be written </e/> in both

accents, contrary to Mitchell and Delbridge's </ɛ/> notation (cf. Mitchell and Delbridge 1965:78).

Although from the point of view of phoneme inventory, the vowel systems of Australian English and of the Received Pronunciation are identical (Wells 1982:595), at the level of distribution, there are some minor differences. Thus in certain words like *castle, graph, France, dance, plant, answer, chance, demand, grasp* and *contrast* which have /ɑː/ in RP, there is both social and regional variation between /aː/ and /æ/ in Australian English (Bradley 1991:228–231). Between RP and Australian English, there are also distributional differences affecting /ɪ/: the opposition of unstressed /ɪ/ vs. /ə/ (as in *chatted* vs. *chattered, torches* vs. *tortures*) is neutralized in the speech of some Australian speakers; thus the words *it, is* and *him* have distinct weak forms with the vowel /ə/ in unstressed positions. The unstressed final vowel of *happy* in Australian English is /ɪi/ rather than /ɪ/, and the prefixes *pre-, re-* and *de-* fluctuate between /ɪi/ and /ə/. (Wells 1982:601–602.)

At the phonetic level, there are two general tendencies in the Australian English vowel system in relation to the Received Pronunciation: closing of front short vowels and fronting of back vowels. In the following, these tendencies will be shortly reviewed in the light of previous study.

1.1.1 Closing of Front Short Vowels

In Figure 1 below, the results of the acoustic measurements of some Broad and Cultivated Australian English simple vowels carried out by Bernard (1970:115) are presented, together with the values obtained by Wells for the corresponding RP vowels in 1962 (reported in Henton 1983:354). All of the vowels for both of the measurements occur in the /h _ d/ frame and are produced by male speakers (Henton 1983:353–355; Bernard 1970:113–114). When the frequencies of the first two formant peaks are tabulated – F1 on the ordinate, F2 on the abscissa, origo in the top right hand corner – a figure reminiscent of the so-called articulatory vowel diagram is obtained: close vowels are at the top, open vowels at the bottom, front vowels to the left and back vowels to the right.

As is obvious also from Figure 1, /e/ and /æ/ tend to be closer in Australian English than in the Received Pronunciation; at the same time, they are slightly more fronted. The vowel /e/ is reported to be the most strikingly different front vowel, hardly opener than the second Cardinal Vowel: [e]
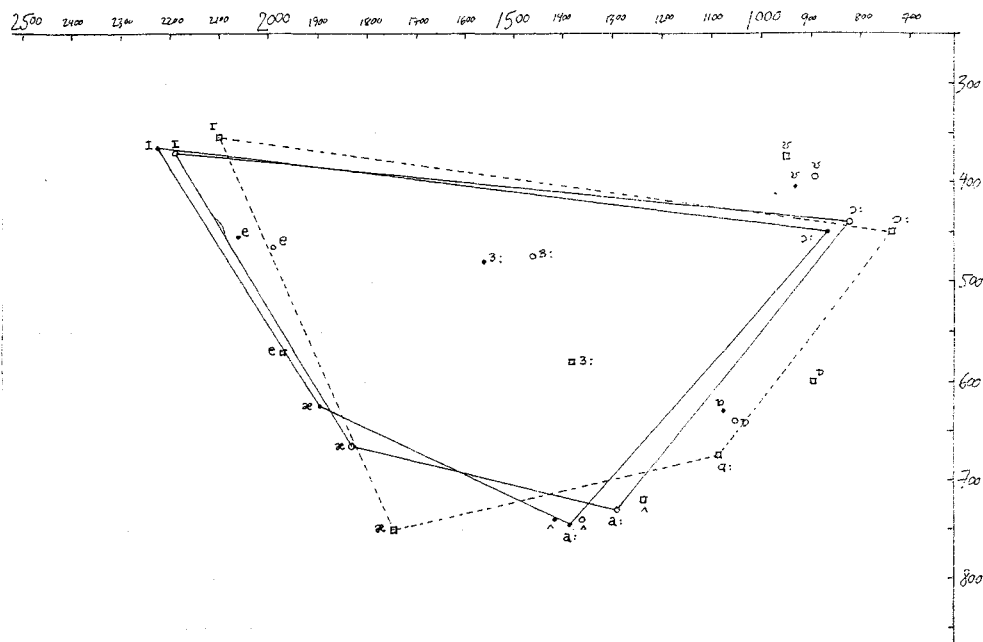
Figure 1. Variation in the acoustic quality of Australian English simple vowels: measurements of the frequencies of the two lowest formants of Broad and Cultivated Australian English simple vowels by Bernard (1970). Broad Australian English vowels are presented with dots, Cultivated Australian English with circles and a four-vowel frame of /ɪ/, /æ/, /a:/ and /ɔ:/ is drawn with a solid line. For a point of comparison, the corresponding RP vowel frequencies by Wells are provided (as reported in Henton 1983), presented with squares and connected with a dotted line.
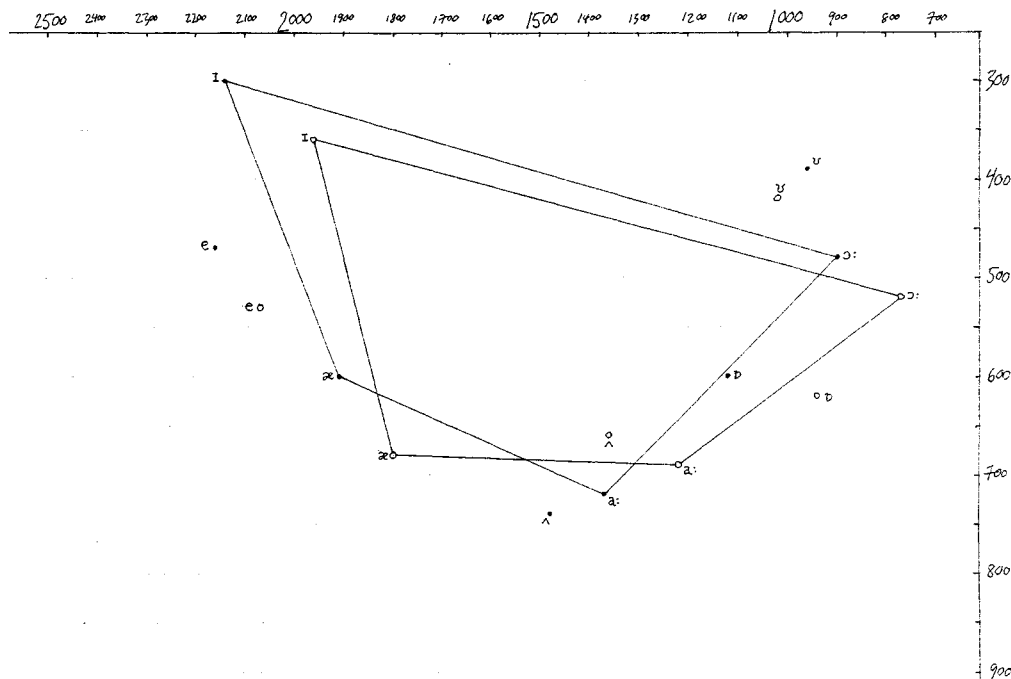
Figure 2. Measurements of the frequencies of the two lowest formants of some Broad and Cultivated Australian English simple vowels by Burgess (1968). Broad Australian English vowels are presented with dots and Cultivated Australian English ones with circles and the four-vowel frame of /ɪ/, /æ/, /a:/ and /ɔ:/ is drawn with a solid line.

(Wells 1982:598; Cochrane 1989:180) or [ę] (Trudgill and Hannah 1982:17); its RP value is given as [ę] (Wells 1982:128) or [ɛ] (Trudgill and Hannah 1982:17). In Figure 1, its closeness can be observed especially in relation to the other short front vowels /ɪ/ and /æ/. Also the Australian English /æ/ tends to be rather closer and more front than the RP quality; its phonetic value is given as [ɛ]. (Wells 1982:128,598; Trudgill and Hannah 1982:17; Mitchell and Delbridge 1965:78.) Thus in Australian English, the short front vowels /ɪ/, /e/ and /æ/ are found within a relatively short stretch of vowel height; the phenomenon is called pancake vocalism (Wells 1982:598).

Short front vowels vary also within Australia: Figures 1 and 2 below give Bernard's (1970) and Burgess's (1968) measurements of the two extremes of the continua: Broad and Cultivated Australian English vowels. From Figure 1 it can be seen that the variation is smaller within Australian English than between Australian English and the Received Pronunciation. Again, Cultivated vowels are situated closer to their RP counterparts and Broader /e/ and /æ/ are closer and more front. According to Cochrane (1959) and Burgess (1968) (cf. Figure 2), also /ɪ/ varies along the same axis, even though it has not got equal space for variation; Cochrane (1959:80) attributes to the Broad and Cultivated variants the phonetic values indicated in Table 2 below.

Table 2. Variation in the Australian English short front vowels according to Cochrane (1959).

	Cultivated Australian English	Broad Australian English
/ɪ/	ɪ	i̱
/e/	ę	e
/æ/	æː	ɛː

According to Oasa (1989:286), /æ/ is raised before nasals in the speech of many speakers, especially in New South Wales and Victoria. Also Baker (1966) reports that /æ/ tends to be pronounced [ɛ] in the words *am*, *hands*, *can* (Baker 1966:441). The close nasalized variant of /æ/ is strongly stigmatized, "the sound most likely to bring down on the speaker the charge that 'he speaks with an Australian accent'" (Mitchell and Delbridge 1965:61,81).

1.1.2 Fronting of Back Vowels

Another tendency observable in the Australian English monophthongs in relation to the Received Pronunciation is the fronting of back vowels, which affects the most notably /ʌ/ and /aː/. The present-day RP /ʌ/ is a half-open or slightly opener central vowel [ɐ] and the RP /ɑː/ lies between back and central ([ɑ̟ː]) or may sometimes be fully back ([ɑː]). (Wells 1982:132,158,281, 599; Trudgill and Hannah 1982:17.) As can be seen from Figure 1, the Australian English /aː/ has been fronted more than /ʌ/, so that their quality is nearly the same and their distinction is almost purely one of length (cf. Turner 1966:99; Bradley 1989:265; Clark 1989:209). Their phonetic quality has been described variably between just fronter than central, central to front and fully front, and the transcriptions of the quality include [a a ɐ ɐ+ a ä ɐ̈+] (Cochrane 1989:180; Trudgill and Hannah 1982:17–18; Bauer 1979:58–64; Bradley 1989:265; Mitchell and Delbridge 1965:78; Wells 1982:131–132,158,281, 597–599). As can be seen in Figure 1, Broad qualities are more fronted than the Cultivated ones (Bernard 1970:116). This difference is represented in phonetic script by Cochrane (1959:80) as presented in Table 3 below; he nevertheless posits a difference also in the degree of openness. In the table, Cochrane's symbol <a> for the central fully open vowel quality is replaced by the symbol <ɐ̈>. In Cochrane's (1959) notation, <ɜ> indicates a central half-open vowel quality.

Table 3. Variation in the Australian English /ʌ/ and /aː/ according to Cochrane (1959).

	Cultivated Australian English	Broad Australian English
/ʌ/	ɜ̞	ɜ̞̈
/aː/	ɐ̈ː	a̠ː

According to Wells, also the Australian English /ɜː/ is subject to fronting. In the Received Pronunciation, /ɜː/ is a mid central vowel, in Australian English it is rather front of central. (Wells 1982:137,599.) The most noticeable difference in relation to RP is the closeness of the Australian English /ɜː/: it is half-close, sometimes even closer (Wells 1982:599); Trudgill and Hannah (1982:17) transcribe it as [əː]. According to Figure 1, the amount of fronting might vary within Australian English more than the amount of closing, the Broad varieties again being more front.

Wells argues that, after /aː/ and /ɜː/ (for the quality of /uː/, see below) have moved forward, /ɔː/ is the only really back long vowel in Australian English (Wells 1982:599). In the measurements of Bernard and Burgess, /ɔː/ is in all varieties the vowel with the lowest F2 values (cf. Figures 1 and 2). As F2 is lowered either by backing or by rounding (Suomi 1990:147), and as the RP /ɔː/ is closely rounded (Wells 1982:145), it is possible that part of the lowness of F2 is also in Australian English due to a difference in rounding. According to Bauer (1986:233), this is the case in New Zealand English: other back vowels are not as regularly rounded as /ɔː/.

It has been suggested that the Australian English /ɔː/ is extremely close in comparison with the Received Pronunciation. According to the literature, the RP /ɔː/ is situated between cardinals 6 and 7, whereas the Australian English /ɔː/ is situated near the cardinal vowel 7; the former is transcribed as [ɔː] or [ɔə], the latter as [oː], [o̞ː], [o̞ə] or [oɐ]. (Wells 1982:145,293; Trudgill and Hannah 1982:17; Mitchell and Delbridge 1965:78; Cochrane 1959:79–80.) According to Figure 1, there is not a great amount of difference between the F1 of the Australian English vowels and that of the RP counterpart. But vowels are perceived in relation to the rest of the vowel system, and when /ɔː/ is compared with the other back vowels, the difference in Figure 1 is evident: the Australian English /ɔː/ is very near to the vowel /ʊ/ whereas in the Received Pronunciation, /ʊ/ and /ɒ/ are at about an equal distance from /ɔː/.

Summing up, differences between the Australian English and RP vowel systems are mainly phonetic; their phoneme inventories are identical and at the level of distribution, there are only minor differences. The phonetic differences of simple vowels in Australian English in relation to RP, as well as in Broad Australian English *vis-à-vis* Cultivated Australian English, are in previous study abstracted to two general tendencies: closing of front short vowels, especially of /ɛ/ and /æ/, and fronting of back vowels, especially /ʌ/ and /aː/ but also /ɜː/, so that out of the long vowels, only /ɔː/ stays fully back.

1.2 Forward-Gliding Diphthongs: /ɪi/, /ɛɪ/, and /aɪ/

In the following, previous study on the phonetic variation of Australian English closing diphthongs will be reviewed. Much of the previous study on Australian English closing diphthongs consists of determining the phonetic quality of the two extremes of phonetic variation, Broad and Cultivated Australian English diphthongs, or the phonetic qualities of the three social accents, Broad, Cultivated, and General. Both auditory and acoustic methodology are used in previous study, the acoustic measurements available consisting of Bernard (1970, 1989) and Burgess (1969). The review will start with the series of forward-gliding diphthongs, /ɪi/, /ɛɪ/, and /aɪ/.

Most of the previous studies on Australian English diphthongs have used phonetic script to indicate the Australian English pronunciation and its variation. They have all used IPA symbols with few deviations, but the exact phonetic values attributed to them are open to question: have they used the values of the Cardinal Vowels or the values of the Received Pronunciation or the Australian English values as a point of reference? Mitchell and Delbridge (1965) explicitly state that their phonetic symbols only indicate relative values: they are to be compared only with one another, not with the values of some other study nor with any absolute articulatory or acoustic qualities "except in broad terms" (Mitchell and Delbridge 1965:ix,xi). Nevertheless, because of the great scope of the Mitchell and Delbridge (1965) study (7082 schoolchildren all over Australia), their phonetic values have been used in many other studies, not always with the appropriate reservations: Burgess (1968:130; 1969:239) and Wells (1982:597) treat the results of Mitchell and Delbridge (1965) as representing certain values of the International Phonetic Alphabet (IPA); Horvath (1985:13–15,67–69) and Bernard (1970:118–119) treat them slightly more carefully.

Both Cochrane (1959:80) and Clark (1989:207) explicitly state that they use as the auditory basis of vowel description the cardinal vowels as pronounced by Daniel Jones. Wells (1982:xvii) claims to use the symbols of the International Phonetic Alphabet, which practically also implies the cardinal vowel values as his point of reference. Bauer (1979), Matthews (1981) and Trudgill (1982) do not specify their points of reference; presumably it is then the IPA. Burgess (1969:242–243) uses as a point of reference the other vowels of Australian English measured in his study (1968), even though he does not state

it explicitly. Turner (1966), as well, obviously refers with his symbols to the Australian English qualities of the vowels (cf. Turner 1966:101).

Cochrane (1959 and 1989), Wells (1982) and Clark (1989) differ in their symbolization of the central open and half-open vowels and in their use of the symbol <ʌ>. In connection with the Australian English diphthongs, Wells uses <ʌ> to indicate the quality of the Australian English /ʌ/ vowel, as in the word *strut*: an unrounded just fronter than central vowel quality between half-open and open (Wells 1982:597) while it in IPA script means a spread back half-open vowel quality (cf. Clark 1989:209; Cochrane 1989:176,179). For the central half-open quality, the IPA symbols are <ɐ> or the additional mid central vowel <ɜ>, both used by Cochrane (1989:176 and 1959:79, respectively). To indicate a central fully open spread vowel, the same quality they give for the Australian English /aː/, Cochrane and Clark use special symbols with diacritics: <a̱> (Cochrane 1959:79), <a̠> (Cochrane 1989:176) or <ɑ̈> (Clark 1989:212). Wells defines the Australian English /aː/ in the word *start* a central to front open vowel and writes its quality with the symbol <a̠> (Wells 1982:599).

Table 4 below comprises some of the Australian English variants of the forward-gliding series of closing diphthongs presented in phonetic script in previous studies. As a point of comparison, also some reports of the corresponding RP vowels are presented. The qualities of each diphthong in Australian English form a continuum (Delbridge 1970:20). The purpose of this table is to give examples of the variation along the continuum, not to promote the traditional categorization of the diphthong qualities or of the speakers into Cultivated, General, and Broad. The extra column of Modified Australian was created by Mitchell and Delbridge (1965:1–3,83–84) for the consciously Cultivated qualities perceived as affected. In several studies, separate diphthong qualities are reported before /l/ (e.g. Turner 1966:96–103; Clark 1989:209–210). These diphthong qualities are not included in Table 4 because they fall out of the scope of the present study. Because of the susceptible relativity of the phonetic script, the values given by different authors are attributed separate lines.

Figures 3 to 6 below present some of the results of the acoustic measurements by Bernard (Figures 3 and 4) and Burgess (Figures 5 and 6). The diphthongs /ɪi/, /ɛɪ/, /aɪ/, /ʊu/, /ou/, and /aʊ/ are presented in a four-vowel frame consisting of /ɪ/, /æ/, /aː/, and /ɔː/; the average Cultivated (Figures 3 and 5) and Broad (Figures 4 and 6) diphthongs are presented separately, together with the respective vowel frames. Bernard

Table 4. Variation in the Australian English /ɪi/, /ɛɪ/, and /aɪ/ as presented in phonetic script in previous study and their RP counterparts. Abbreviations used: M&D 1965 = Mitchell and Delbridge 1965, Tr&H 1982 = Trudgill and Hannah 1982.

(Mitchell and Delbridge 1965:82-84; Wells 1982:140,149,292-293,597; Cochrane 1959:80; 1989:179; Clark 1989:210; Trudgill and Hannah 1982:17-18; Bauer 1979:61; Matthews 1981:24; Burgess 1969:238,242; Turner 1966:96-102.)

	RP counterparts	Modified Australian English	Cultivated Australian English	General Australian English	Broad Australian English
/ɪi/					
M & D 1965		i	ɪi	əɪ	ə̧'ɪ
Wells 1982	ɪi, iː		ɪi	ɪi	əːɪ
Cochrane 1959			ɪi̯		ɪ̵i̯
Cochrane 1989	iː		ɪi		əɪ
Tr & H 1982	ɟi				ɜ'ɪ
Bauer 1979					əi
Turner 1966	ɪi				əɪ, ei̯
/ɛɪ/					
M & D 1965		eɪ	ɛɪ	ʌɪ	ʌ'ɪ, ʌ̞ɪ
Wells 1982	eɪ, ɛɪ, ɐ̈ɪ, ɛ̧', ɛ̧ę̧		ɛɪ	ʌɪ	ʌːɪ, a̱ːɪ
Cochrane 1959			ɛɪ̯		ɜ̧i
Cochrane 1989	eɪ		ɛɪ		ɐɪ
Clark 1989			ɛe		æe
Tr & H 1982	eɪ				ɐ̧'ɪ
Matthews 1980					ɜɪ, ɐɪ
Burgess 1969			æɪ		ʌɛ
Turner 1966					ʌɪ
/aɪ/					
M & D 1965		aɛ, æɪ	aɪ	ɒɪ	ɒ'ɪ
Wells 1982	æɪ, aɪ, a̱ɪ, ɐɪ, ɑ̧ɪ		a̱ɪ̧	ɒɪ̧	ɒːɪ̧
Cochrane 1959			a̧ɛ̰̈		ɒɛ̰̈
Cochrane 1989	aɪ		aɪ		ɒɪ
Clark 1989					ɔe
Tr & H 1982	aɪ				ɒ'ɪ, ɒ'ᴵ, ɒ'ᵊ
Burgess 1969			aɪ		aɛ, ɒɛ
Turner 1966	aɪ		aɪ	ɑɪ	ɒɪ, ɒə

Figure 3. Acoustic quality of closing diphthongs in Cultivated Australian English: movements of the frequencies of the two lowest formants of six closing diphthongs in a four-vowel frame according to Bernard (1970).
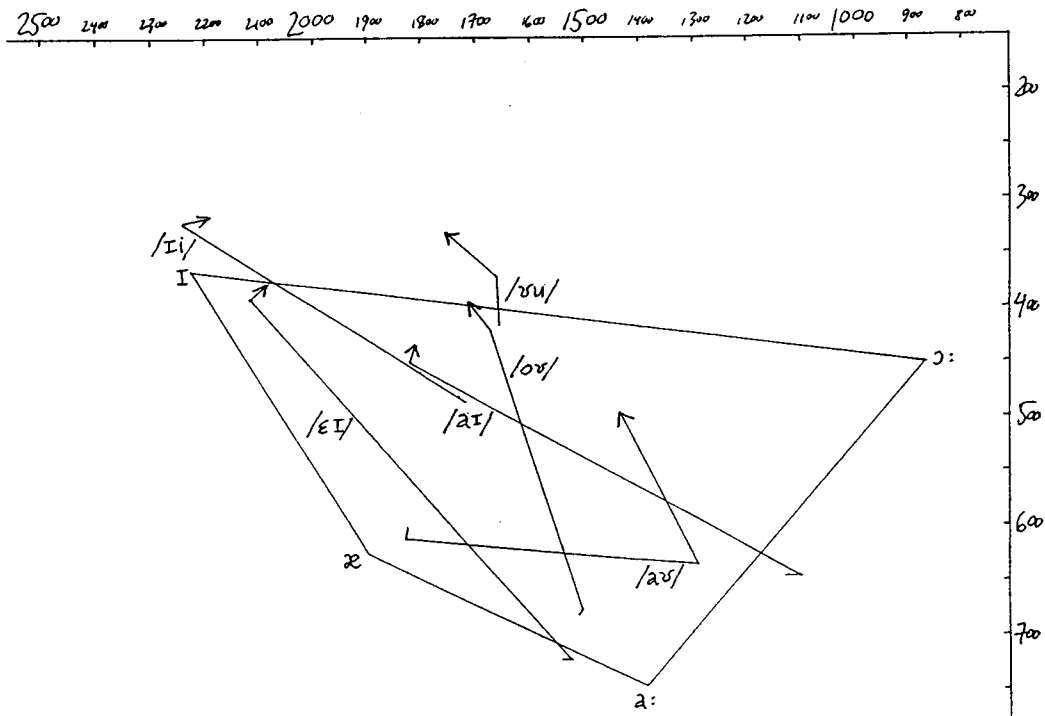
Figure 4. Acoustic quality of closing diphthongs in Broad Australian English: movements of the frequencies of the two lowest formants of six closing diphthongs in a four-vowel frame according to Bernard (1970).
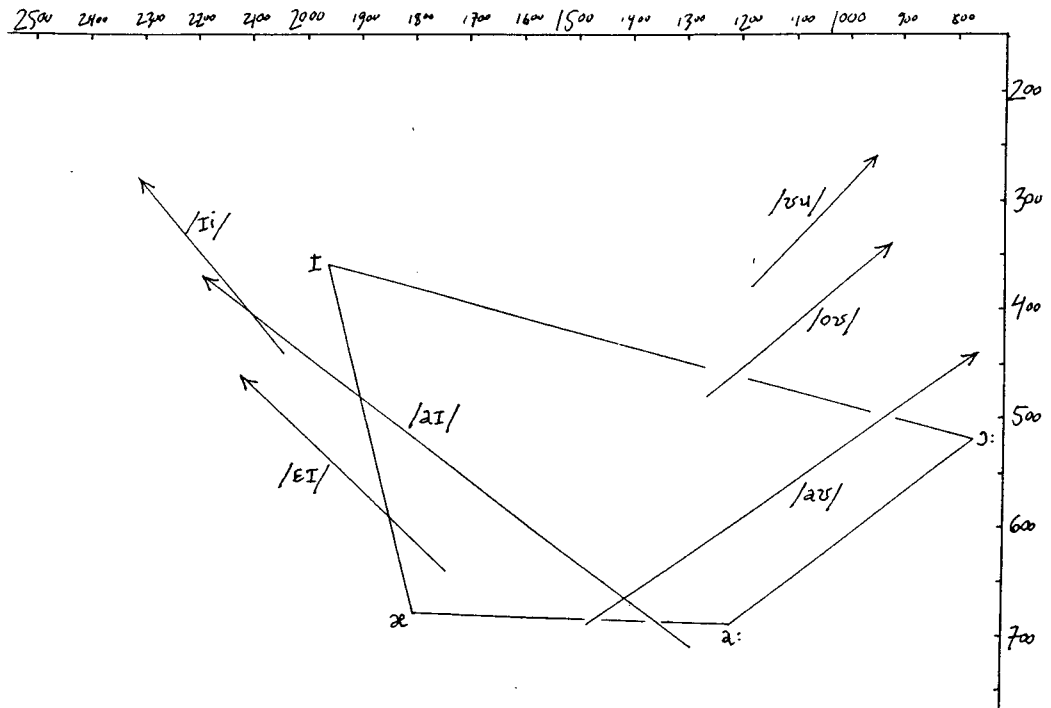
Figure 5. Acoustic quality of closing diphthongs in Cultivated Australian English: movements of the frequencies of the two lowest formants of six closing diphthongs in a four-vowel frame according to Burgess (1969).
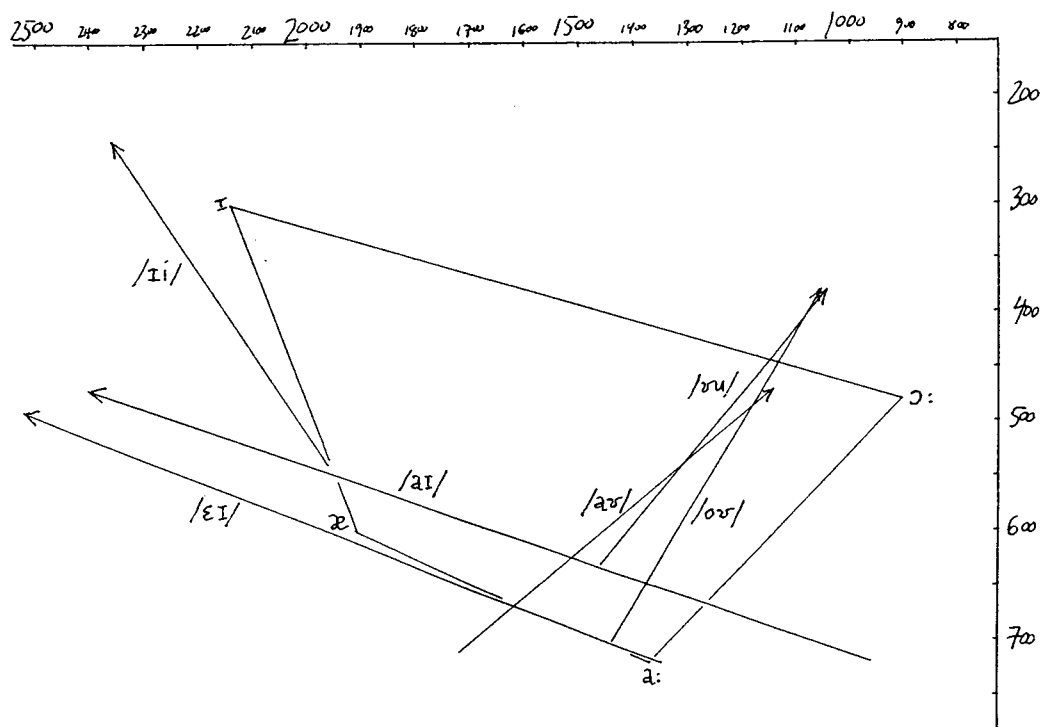
Figure 6. Acoustic quality of closing diphthongs in Broad Australian English: movements of the frequencies of the two lowest formants of six closing diphthongs in a four-vowel frame according to Burgess (1969).

measures the formant frequencies of /ɛɪ/, /aɪ/, /ou/, and /au/ at four points: onset, first target, second target, and offset. Because he classifies /ɪi/ and /ʊu/ as one-target sounds, they are measured only at onset, target, and offset (Bernard 1970:114). Burgess measures what he calls starting point and finishing point – he does not specify what their relation to transitions or targets is (Burgess 1969:240).

In Table 4, the nature of the chain shift can be seen: the Broad /ɪi/ are reminiscent of Cultivated /ɛɪ/; the Broad /ɛɪ/ are even more reminiscent of Cultivated /aɪ/. Also in the acoustic measurements (Figures 3 to 6), chain shift is evident: in the measurements of both Burgess and Bernard, the starting point of Broad /ɪi/ is not far away from that of Cultivated /ɛɪ/, nor is the starting point of Broad /ɛɪ/ far from that of Cultivated /aɪ/. In perception experiments, the Broad /ɛɪ/ was however never heard as Cultivated /aɪ/; the opposite was occasionally true (Robertson, reported in Delbridge 1970:28–29).

According to Table 4, the General Australian English vowel qualities of /ɪi/, /ɛɪ/, and /aɪ/ appear already definitely Australian; the Cultivated Australian English qualities lie at the edge of RP and Modified Australian qualities correspond to the more conservative RP ones. As Table 4 indicates, the views of the different authors differ most in the most indigenous end of the continua. The Australian English /ɪi/ varies from the Cultivated [ɪi] through the General [əɪ] or [ɪi] to the Broad [əi], [ə:ɪ], or [ɜ·ɪ]; even [ɛɪ] is heard by Turner in children's speech (Turner 1966:96). The monophthong [i] is perceived rarely (Clark 1989:210), mainly in consciously Cultivated pronunciation (Mitchell and Delbridge 1965:82) or in special shortening environments (Wells 1982:598) as mentioned above.

According to Mitchell and Delbridge (1965:82), the Broadness of the Australian English /ɪi/ is expressed except as a lower starting point, also as a slower glide. In Bernard's measurements, the total duration of any of the Broad sounds is not significantly longer than that of the Cultivated sounds; the differences lie in the relative length of targets and transitions. Both the Cultivated and the Broad /ɪi/ have a long onglide (54.6 and 61.5 per cent of the duration of the sound, respectively), but the Broad diphthong has longer first target and transition durations (altogether 19.1 per cent of the sound); the Cultivated diphthongs less often have first targets. Therefore, the Cultivated [i] targets start at a point when on an average 55.3 per cent of the duration of

the sound has passed, whereas the Broad sound achieves the [i] target only at 80.5 per cent. (Bernard 1989:202.)

The Cultivated Australian English /ɛɪ/ is usually transcribed [ɛɪ], even though <ɛ> with certain authors might of course indicate the quality of the Australian English /ɛ/, not the IPA quality. Clark (1989:210) reports a smaller glide, [ɛe]. In Figures 3 and 5, both Bernard's and Burgess's Cultivated /ɛɪ/ glide starts at a point which is only slightly closer than the Cultivated Australian English /æ/, which is, as was noted above, very close, not far removed from the RP /ɛ/. According to Table 4, the starting point of the Broad /ɛɪ/ is around central half-open (Cochrane 1959:80; 1989:179; Matthews 1981:24) or a little forward of central position like the Australian English /ʌ/ (strut) or /a:/ (start) (Wells 1982:597,599; Turner 1966:101). Clark (1989:210) gives the Broad variant as [æe], with a front starting point and with half-close front end-point, although the most usual direction of the glide in Table 4 is towards [ɪ]. In the acoustic measurements, the Broad Australian English /ɛɪ/ glide starts around the region of Broad /a:/ (Figures 5 and 6) or slightly forward of it (Figures 3 and 4). The direction of the glide is either towards /ɪ/ or towards a more open front quality.

Again, Mitchell and Delbridge (1965:83) argue for slower glide of the Broader variants. In Bernard's (1970, 1989) measurements, the durational differences of /ɛɪ/ lie mainly in the longer Broad first targets versus the greater durations of Cultivated transitions (Bernard 1989:202); actually, in the Cultivated group, well stated first targets exist only in 26 per cent of the cases, the first part of the nucleus thus receiving very little weight (Bernard 1970:122).

The results of Bernard (1970) and Burgess (1969) are undecisive about the relation of the starting point of the Cultivated /aɪ/ to that of Broad /ɛɪ/: it can be either more open or more closed, further back or more front. In both measurements, however, the Cultivated /aɪ/ diphthong begins very near the region of the Cultivated /a:/ sound (Figures 3 to 6). Also Wells (1982:597) and Cochrane (1989:179–180) indicate Cultivated Australian English /aɪ/ to begin with the quality they gave for the /a:/ vowel, [a̠] and [aɪ], respectively. Cochrane (1959:80) gives a quality slightly more front, [a̠ĕ]. In Table 4, the starting point of the Broad Australian English /aɪ/ is almost unanimously [ɒ], except that Clark (1989:210) gives a not only backed and rounded but also raised starting point, [ɔ].

According to Trudgill and Hannah (1982:18), the Australian English /aɪ/ has a tendency towards monophthongization: in Broad Australian

English, the second element gets shorter and central: [ɒ·ɪ], [ɒ·ᴵ], [ɒ·ə].
According to Wells (1982:150), a diphthong with a weakened second element
occurs as an optional variant in Australian English. Bernard (1970) finds
identifiable second targets quite rarely, and even less in the Broad group than in
the Cultivated (18 versus 42 per cent, respectively). Nevertheless, he finds no
differences of average target durations between the two groups; the only
differences lie in the target qualities. (Bernard 1970:122.)

The tendency of Broad /aɪ/ towards weakened second elements is
expressed in the phonetic script of Table 4 in the form of second elements more
open, central or shorter than [ɪ]: [ɒːɪ̈, ɒë̆, ɒə] (Wells 1982:597; Cochrane
1959:80; Turner 1966:101–102). This reduction applies also to the Cultivated
second targets, written [aɪ̈, a̤ë̆] (Wells 1982:597; Cochrane 1959:80),
although Bernard (1970:122) states that the second targets of Cultivated /aɪ/
diphthongs are fronter and closer on average than the Broad ones. In Bernard's
measurements, as seen in Figures 3 and 4, both the Cultivated and the Broad
/aɪ/ glide run towards /ɪ/, but fall short of it, the Broad glide slightly more
so than the Cultivated one. In Burgess's measurements (see Figures 5 and 6),
the target of the Broad /aɪ/ glide is definitely not /ɪ/ but something much
more open in the front region.

Summing up, there is a tendency towards monophthongization of /aɪ/
in Australian English according to previous study. The Broad starting point is
rounded and quite back [ɒ] or [ɔ] whereas the Cultivated /aɪ/ diphthong
begins very near the region of the Cultivated /aː/ sound. In previous study,
the starting point value of the Cultivated Australian English /ɛɪ/ is generally
given as the front half-open vowel quality and the broader starting point values
are situated further back, up to the central half-open region of the Broad /ʌ/
and /aː/. The starting point value of the Cultivated Australian English /ɪi/
is generally given as the front close lax vowel quality and the broader starting
point values are more open and back, up to the mid-central vowel quality.

1.3 The other series of closing diphthongs: /ʊu/, /oʊ/, and /aʊ/

In the following, both auditory and acoustic study on the phonetic variation of /ʊu/, /oʊ/, and /aʊ/ will be reviewed.

Table 5 below comprises some of the Australian English variants of /ʊu/, /oʊ/, and /aʊ/ (as in the words *toot, toast,* and *stout*) presented in phonetic script in previous studies and the corresponding RP values. The results of Bernard's (1970, 1989) and Burgess's (1969) measurements of these diphthongs in two different varieties of Australian English can be seen above in Figures 3 to 6. On the basis of Table 5 and Figures 3 to 6, the idea of a chain shift is less readily applicable to /ʊu/, /oʊ/, and /aʊ/ than to /ɪi/, /ɛɪ/, and /aɪ/, the correspondance between the Received Pronunciation and Cultivated or Modified Australian English is less clear and the different authors disagree more about the variation within Australian English than in Table 4.

As mentioned above, there are usually two possible directions of change for the vowel [uː] in the type of diphthong shift which is current in Australia: [əʊ] or [ʉː] (Wells 1982:257). In Cockney, which has undergone the same kind of diphthong shift, the amount of diphthongization of /ʊu/ might be dependent on the phonetic environment, monophthongal realizations being favoured by prenasal environment and diphthongal realizations being favoured by a following lenis consonant (as in the word *move*) or by wordfinal environment, especially if the following word begins with a vowel (Wells 1982:307). In Australian English, too, the distributional variation of /ʊu/ favours a glide in word-final positions (*zoo*). The direction of the glide may be either backward or forward and varies regionally (see below, Chapter 2.2). (Oasa 1989:275; Bernard 1989:196-197.) In preplosive environment, the place of articulation of the consonants has an effect on the vowel quality: in alveolar environment (*toot*), /ʊu/ is realized as an alveolar sound, that is, its quality is extremely advanced; before labials (*poop*), it is less front and most back before velars (*cook*) (Bradley 1989:266). Prelateral environment (*school, pool*) favours a retracted monophthong (Oasa 1989:273-275).

In Figures 3 to 6, a vast difference between the /ʊu/ measurements of Bernard (1970) and Burgess (1969) can be perceived: already in the Cultivated diphthongs, there is a difference in the quality and amount of glide; Burgess's glide is longer and more retracted. The difference between the Broad glides is enormous: the direction of Bernard's glide is slightly fronting, its movement is minimal, and it takes place at a quite close position more front than the Broad

Table 5. Variation in the Australian English /ʊu/, /oʊ/, and /aʊ/ as presented in phonetic script in previous study and their RP counterparts. Abbreviations used: M&D 1965 = Mitchell and Delbridge 1965, Tr&H 1982 = Trudgill and Hannah 1982.

(Mitchell and Delbridge 1965:78,82-85; Wells 1982:146-147,151,281,292-294,597; Cochrane 1959:80-81; 1989:179; Trudgill and Hannah 1982:17; Bauer 1979:62-64; Burgess 1969:238,242-243; Turner 1966:100-103.)

	RP counterparts	Modified Australian English	Cultivated Australian English	General Australian English	Broad Australian English
/ ʊu/					
M & D 1965		u	ʊu, uw	əʊ, əɯ	ɘˑʊ, ɘˑɯ
Wells 1982	ʊu Ʉü uː üː		ʊu	ɨɯ, ʉʉ	əːʉ
Cochrane 1959			ʉ̆ŭ		ɨɯ̆, ʉŭ
Cochrane 1989	uː		ʉu		ɨu, əu
Tr & H 1982	ɰu				ʉʉ
Bauer 1979					ʉ, Y
Turner 1966					əʊ, əu, ou
/ oʊ/					
M & D 1965		ɒu	ɒu, ö̤u - ʌu		ʌˑu, ʌ̞u, ʌ̞ɯ
Wells 1982	ɜu, ɛ̈u, əu		ö̤u	ʌʉ	ʌːu, a̤ːʉ
Cochrane 1959			ö̤ŭ̞		ɜʉ̆
Cochrane 1989	əu		ɘ̤ʉ		ɛʉ
Tr & H 1982	əʉ				ɒˑʉ, ɛˑə
Bauer 1979					ɛu
Turner 1966					ʌu
/ aʊ/					
M & D 1965		a̱u	au, a̤u.	æu	æˑu, æ̤u, æ̰ṵ̃
Wells 1982	a̱u, ɐ̞u, ɑ̤u, ɐ̞ɨ		a̱u	æo	ɛːo, ɛ̃ːʉ
Cochrane 1959			a̱ŭ̆		æŏ
Cochrane 1989	ɑu		ao, aɔ		æo, æɔ
Tr & H 1982	ɑu				æˑʉ, æˑᵛ
Burgess 1969			au		æu
Turner 1966					æu, æ̰ṵ̃

/ɜː/ (cf. Figure 2) which in Australian English is rather front of central (see above, Chapter 1.2; Wells 1982:599). Burgess's glide consists of a large closing and backing movement of phonetic colour starting around half-open central region and backing towards /ʊ/ (cf. Figure 3). The differences between the results of Bernard and Burgess might at least partly be explained by the distributional variation of /ʊu/: Burgess uses isolated pronunciations (Burgess 1969:240), which might behave like Oasa's word-final environment (Oasa 1989:275-282) and favour the backing glide. Bernard's study uses the /h _ d/ frame, which might be comparable to Oasa's preplosive environment (Oasa 1989:273) and Bradley's alveolar environment (Bradley 1989:266) in that it would favour the more forward qualities, partly because of the offglide to alveolar position (Bernard 1970:113 cf. 1989:189,197). In Bernard's measurements, there is next to no difference between the Broad and Cultivated /ʊu/ qualities, whereas in Burgess, the difference in the degree of broadness can be seen.

The Australian English /ʊu/ occupies a fairly unrestricted area of the phonological vowel space (Bernard 1970:119; Clark 1989:210); the monophthongal phonetic qualities reported in Table 5 include [ʉ, ʉː, ʉ̞, ɤ] (Clark 1989:210; Bauer 1979:62; Mitchell and Delbridge 1965:78). A fully back monophthong would occur only before /l/ (Clark 1989:210) or in consciously Cultivated speech (Mitchell and Delbridge 1965:82). The largest glides reported in phonetic script include closing and backing ones starting from the mid central region and associated with Broadness especially if the first element is lengthened: [ə̙ˑʊ, ə̙ˑɯ, əu] (Mitchell and Delbridge 1965:82; Cochrane 1989:179). The glides may also be fully close [ʉu, ɨu] (Cochrane 1989:179), fronting glides [ʉʉ̞] (Trudgill and Hannah 1982:17) or offglides [ʉːə̆] (Clark 1989:210). According to Table 5, the Cultivated glides include less movement, are always rounded throughout, and have fully back endpoints. The characteristics attributed to Broad glides include more advanced first element and possible unrounding throughout (Cochrane 1959:81) or unrounding and opening of the first element (Cochrane 1989:179). All the Broad glides in Table 5 have a central starting point except for the quality [ou] Turner reports to have heard from the mouth of his little son in the word *too* (Turner 1966:100). Also the end point may be central and the Broad movement does not have to be wide: [ʉʉ̞] (Trudgill and Hannah 1982:17).

In addition to /ʊu/, there is a vast difference between the results of Bernard (1970) and Burgess (1969) in the case of /oʊ/ as well: both of

Burgess's glides have a strongly backing and closing direction whereas Bernard's glides have a closing and fronting direction (Figures 3 to 6). Also this vowel is strongly conditioned by the phonetic environment: Bernard compares his measurements in the /h _ d/ frame to an open syllable /hoʊ/ and notes that the following /d/ fronts all of the sound, but especially the second target (Bernard 1989:201). Clark (1989:210) notes the strong influence of a following /l/ on this sound. Like the Australian English /ʊu/, also /oʊ/ has space for variation: Bernard (1970:123) notes the excessive variability of its manifestations even in the frame /h _ d/.

On the fronted-retracted axis, the starting points of all the average /oʊ/ diphthongs in Bernard's (1970) and Burgess's (1969) measurements are situated slightly forward of the Australian English /aː/. The other three glides start from a half-open to open position, but Burgess's Cultivated starting point is very close, closer than his /ɔː/. Also Bernard's Cultivated starting point is slightly closer than the Broad one. Bernard's glides run up the middle of the vowel diagram, towards the region of his central to front /ʊu/ qualities, whereas Burgess's glides run backwards, towards /ʊ/.

In Table 5, the Cultivated variants of /oʊ/ are given as [oʊ, ọʊ, ọ̈ü] or [ə̟ʉ] (Mitchell and Delbridge 1965:83-84; Cochrane 1959:80; 1989:179), all of them different from the current RP qualities. The Broad starting points given by Mitchell and Delbridge (1965), Wells (1982), and Cochrane (1959; 1989) are identical with those they gave for the Broad /ɛɪ/: between central and front half-open and open. According to all of them, the Broad starting points are thus more open than the Cultivated ones, but according to Mitchell and Delbridge (1965), Wells (1982), and Cochrane (1959) they are also more fronted. Many of the given end points are central [aːʉ, ə̈ʉ, ɐʉ, ɒˑʉ, ɐˑə, əʉ] (Wells 1982:597; Cochrane 1989:179; Trudgill and Hannah 1982:17; Clark 1989:210) or somewhat fronted or unrounded back qualities [ọ̟ʉ, ọ̈ʉ, ʌ̟ɯ] (Mitchell and Delbridge 1965:78,83-84; Cochrane 1959:80). Cochrane (1959:80) gives a more fronted end point for the Broad sound than for the Cultivated one.

One of the criteria used by Wells to define the limits of the Received Pronunciation is the relation of the starting points of /aɪ/ and /aʊ/: in the Received Pronunciation, the starting point of /aʊ/ is never fronter than that of /aɪ/, even though they can be identical (Wells 1982:292,299,310). According to Wells (1982:597) and Cochrane (1989:179), the starting points of Cultivated Australian English /aʊ/ and /aɪ/ are identical, whereas according to

Cochrane (1959:80), Mitchell and Delbridge (1965:84-85), Bernard (1970, 1989), and Burgess (1969) (Figures 3 to 6), the glides are crossed: the starting point of /aʊ/ is slightly more front. With Broadness increasing, the starting point of /aʊ/ gets fronter and then closer; the average Broad starting point in Table 5 is [æ], although it can be closer, [æ̝] or even [ɛ] (Wells 1982:597), with possible nasality (Mitchell and Delbridge 1965:85).

Bernard (1970) and Burgess (1969) (Figures 3 to 6) are in considerable agreement about the Cultivated Australian English /aʊ/: the starting point is around halfway between the Cultivated /aː/ and /æ/, with a backing and closing glide. Bernard's glide runs towards a point more open than the Australian English /ɔː/ whereas Burgess's glide is rather more closing. Burgess's Broad glide is very similar to his Cultivated one, but Bernard's average Broad glide starts at a point not far removed from the Australian English /æ/ and glides horizontally, towards [ɒ], in a backing and even slightly opening direction. A movement of this kind is indicated also by Horvath's (1985:69) transcription [æɒ] for the Broad Australian English /aʊ/.

In Table 5, end points of /aʊ/ more open than [ʊ] have been proposed by Cochrane (1959:80) for Broad Australian English [æŏ], by Cochrane (1989:179) for both Broad [æo, æɔ] and Cultivated [ao, aɔ] Australian English. Clark (1989:210) gives the transcription [æɔ] for an unspecified variety of Australian English.

Summing up, there is some consensus in previous study about the phonetic quality and variation of Australian English closing diphthongs. The different authors are more unanimous on the Cultivated Australian English qualities which lie at the edge of RP than on the most indigenous ones of Broad Australian English.

In previous study, little consensus exists about the phonetic qualities of the phonemes /ʊu/ and /oʊ/, because they occupy relatively unrestricted areas of the phonological vowel space and their phonetic qualities vary a lot according to the phonetic environment. Consequently, the chain shift of closing diphthongs is more evident in the forward-gliding series /ɪi/, /ɛɪ/, and /aɪ/ than in the other series /ʊu/, /oʊ/, and /aʊ/. The Cultivated Australian English /ʊu/ is close and rounded and it involves little of a movement. The Broad /ʊu/ glide has a central half-close to close starting point, its end point is close and it may involve more of a movement and less of a rounding than the Cultivated glide. Also near monophthongal, close and

rounded Broad variants exist, but they are central to front. The starting point quality of Broad Australian English /oʊ/ is with several authors identical to that of Broad Australian English /ɛɪ/; the Cultivated starting point is closer and perhaps more back. According to previous study, the starting point of Cultivated /aʊ/ is identical to the one of Cultivated /aɪ/ or slightly more front and the starting points of /aʊ/ advance and close with Broadness, up to [æ] or even [ɛ]. Despite their greater frequency of occurence, the phonetic qualities of the General Australian English diphthong variants have been studied less than the two extremes of the sociolinguistic continua.

In this chapter, variation in the phonetic quality of the Australian English closing diphthongs was reviewed in the light of previous study, with reference to the rest of the vowel system. In the following, the distribution of the different diphthong qualities will be reviewed and the extralinguistic variables correlating with the variation will be considered.

2 SOCIOLINGUISTIC VARIABLES IN AUSTRALIAN ENGLISH

As was mentioned above in Chapter 1, the diphthong qualities in the middle of the continua, the General diphthongs, are the most common diphthong qualities in Australian English. The distribution of the different qualities of the diphthong continua in the Mitchell and Delbridge (1965) study is shown below in Table 6. Because of their dialectological orientation, Mitchell and Delbridge (1965) categorize speakers, rather than diphthongs, into the categories they label Cultivated, General, and Broad. They run into difficulties with speakers who use "diphthongs of more than one variety". For these speakers, they create two borderline categories, which are finally collapsed into the adjoining peripheral categories. Even after this operation, the General category remains overwhelmingly big. (Mitchell and Delbridge 1965:36–37.)

Table 6. Distribution of Australian English diphthong qualities in Mitchell and Delbridge (1965:36–37).

Cultivated	Borderline Cultivated	General	Borderline Broad	Broad
243	504	3939	1568	828
3%	7%	56%	22%	12%

Horvath's (1985) results show a more complex reality. Using Principal components analysis on the distribution of the variants of the diphthongs /ɪi/, /ɛɪ/, /aɪ/, /ou/, and /au/ in Sydney speech community, she discovers four sociolects shown in Table 7 below. Each of these sociolects uses all the three varieties of diphthongs, but in different proportions: the proportion of Broad vowels increases and the proportion of Cultivated vowels decreases from sociolect 4 to sociolect 1. Again, like in the Mitchell and Delbridge (1965)

Table 7. Four sociolects of Sydney speech community based on the distribution of variants of /ɪi/, /ɛɪ/, /aɪ/, /ou/, and /au/. Only the results for the non-immigrant group are displayed. Proportion of the different diphthong qualities in each sociolect estimated roughly by the present author on the basis of a diagram. (Horvath 1985:76-82.)

Sociolect	4	3	2	1
Cultivated diphthongs	72%	47%	20%	9%
General diphthongs	27%	45%	61%	56%
Broad diphthongs	1%	8%	19%	35%
Number of speakers	3	18	25	14
Percentage of speakers	5%	30%	42%	23%

study, the midway sociolects are the most usual ones among the non-immigrant group and General is the most frequent vowel quality. (Horvath 1985:76-82.)

In the following, the extralinguistic variables behind this pattern of variation will be considered. The social variables, which include gender, socioeconomic class and age, will be discussed first. Then the regional variation within Australian English will be discussed, and last, stylistic variables.

In addition to the above-mentioned variables, Horvath (1985) uses the extralinguistic variable of ethnicity. In the present study, however, ethnicity will not be used as a social variable, even though immigration is characteristic to Australia and ethnicity appears to be playing a major part in the present development of Australian English closing diphthongs (see Horvath 1985:94). The exclusion is due to the narrow scope of the present study, which does not comprise immigrant and Aboriginal English. Even though there are some examples of these kinds of English in the language courses, the speakers have not enough in common to be considered together, the only common feature being 'ethnic', as distinct from white non-immigrant Australian. This is not to say that their English is not part of Australian English, but that ethnicity should be the subject of a further study.

2.1 Social variation

In the following, the social variables correlating with the variation of Australian English closing diphthongs will be discussed. According to Horvath and Sankoff (1987), when ethnicity is left out, gender is the main social variable in Australian English (Horvath and Sankoff 1987:198–201). Therefore, gender will be considered first; its correlation with vowel quality both in Horvath's (1985) and in Mitchell and Delbridge's (1965) data will be reviewed. In the previous study available on the variation of Australian English closing diphthongs, socio-economic class is used as a social variable only in Horvath's (1985) study; therefore, Chapter 2.1.2 on socioeconomic class as an extralinguistic variable in Australian English is based on her study. In Chapter 2.1.3, age as an extralinguistic variable in Horvath's (1985) study will be considered and the interplay of these three variables in her study will be summarized.

2.1.1 Gender

From previous study of Australian English it appears that, apart from ethnicity, gender is the main social variable correlating with diphthong variation in Australian English. Horvath found this through Principal components analysis in her Sydney study where the vowel variables studied were /ii/, /ɛɪ/, /aɪ/, /ou/, and /au/. (Horvath and Sankoff 1987:198–201.) In the core speech community, where English is usually the mother tongue, at least four sociolects can be discerned, which use Broad, General and Cultivated diphthongs in different proportions (see above, Table 7) and account for 51.2 per cent of the total variance (Horvath 1985:155–159). When also the peripheral speech community with ethnic accents was included, 15 per cent of the total variance in the Sydney study was explained by the distinction between Broad, General and Cultivated accents, which correlate with gender and socioeconomic class (Horvath and Sankoff 1987:198–201).

From the point of view of gender variation, the use of Broad diphthongs (the largest proportion of which is found in Horvath's (1985) sociolects 1 and 2; see above, Table 7) correlates with male gender, the use of Cultivated diphthongs (sociolects 3 and 4) with female gender. Sociolect 4, consisting of 6 per cent of the core, is exclusively a female form of speech. Over 70 per cent of the diphthongs of this sociolect are of the Cultivated variety; some General diphthongs are included, although next to no Broad ones. (Horvath 1985:76–79.)

The strong correlation of diphthong quality with gender and the use of high-prestige variants by female speakers is evident also in Mitchell and Delbridge's classical (1965) study. The distribution of diphthong qualities by gender in their study is shown in Table 8 below: boys tend towards Broad and General diphthongs and use noticeably few Cultivated diphthongs; girls tend towards General diphthongs, but use some Cultivated and some Broad diphthongs as well. (Mitchell and Delbridge 1965:32.)

Table 8. Distribution of diphthong qualities between the genders in percentages; adapted from Mitchell and Delbridge (1965:32).

	Cultivated	General	Broad
girls	17	64	19
boys	2	47	51

Also in Mitchell and Delbridge's study, the differences between boys' and girls' usage are greater than e.g. those between different school types. With rural background, the distribution is different and the Broad accent is more usual also in girls (see below, Chapter 2.2). (Mitchell and Delbridge 1965:32,38–43.)

In her Sydney study, Horvath (1985) argues that in the Broad end of the Broad-General-Cultivated continua, diphthongs are losing some of their force of maintaining the gender distinction because some Broad variants of diphthongs, especially /aʊ/, are associated with immigrant English. At the same time, the role of certain consonantal variables in maintaining the gender distinction in Sydney speech is becoming more important. (Horvath 1985:171,175-176.)

2.1.2 Socioeconomic class

To distinguish between the different social groups, Horvath uses Congalton's sociological scale specifically designed to fit the Australian situation. Parts of this scale are shown in Table 9 below: for each group, some characteristic occupations are included plus some relevant for the present study. The scale can be used as a four-point scale or as a seven-point scale. Each occupation has been accorded also a more detailed numerical value on the seven-point scale. Horvath uses the four-point scale and collapses groups A and B together as middle class, she calls group C upper working class and D lower working class. (Horvath 1985:47; Congalton and Daniel 1976:100.)

Horvath finds that in the core speech community (the most ethnic accents excluded) the use of Broad diphthongs (sociolects 1 and 2) correlates with lower working class, the use of Cultivated diphthongs (sociolects 3 and 4) with middle class (Horvath 1985:85). Sociolect 1 is used mostly by lower working class and sociolects 3 and 4 are used mostly by middle class. Upper working class uses mostly sociolects 2 and 3; sociolect 2 has the largest proportion of General diphthongs (Horvath 1985:79).

Besides occupation, other possible characterizations of social status include the level of education and the amount of social ambition (Cameron and Coates 1988:18). According to Douglas-Cowie (1978:48–51), social aspirations may, at least in certain conditions, predict linguistic behaviour even better than occupation or education. Also parents' occupation is sometimes taken into account in sociological classification (Cameron and Coates 1988:18) and it

Table 9. Parts of the scale of occupational status in Australia by Congalton (reported in Congalton and Daniel 1976:100).

	PROFESSIONALS	PROPRIETORS AND MANAGERS	OFFICE AND SALES WORKERS	FARMERS	SKILLED WORKERS	SEMI-SKILLED WORKERS	UNSKILLED WORKERS
A	1.57 doctor 1.58 university professor 1.81 solicitor 1.92 engineer, professional	1.98 director, large financial or industrial enterprise					
	2.03 dentist 2.32 university lecturer 2.47 school principal	2.01 owner of a very large business					
B	2.75 newspaper editor	2.54 manager, large financial or industrial enterprise 2.62 company manager, large business 2.97 departmental manager, large business	2.68 registered public accountant 2.71 departmental head in Government service	2.89 grazier			
	3.02 physiotherapist 3.28 secondary school teacher 3.73 trained nurse 3.73 social worker 3.93 trained librarian	3.35 owner of a medium size business 3.50 sales manager, large business 3.53 office manager, general 3.55 departmental manager, general 3.61 works manager, large business	3.47 accountant, to a business	3.07 gentleman farmer, well established, does not supervise directly the work on his property 3.31 large farm owner, supervises work on own land, but seldom works actively on it 3.44 sheep farmer, well established			
	4.29 primary school teacher	4.04 owner of a small business	4.21 private secretary, to executive 4.36 real estate agent 4.43 radio announcer	4.30 farmer, actively operates own land with hired help 4.31 farmer, owner, operates land with family	4.45 watchmaker, own business		
C	4.65 air hostess 4.65 news reporter	4.97 owner of a very small business	4.70 insurance agent 4.95 bank clerk or teller		4.59 electrician, own business 4.91 carpenter, own business		
		5.81 publican	5.18 bookkeeper 5.39 commercial traveller 5.52 government office clerk 5.92 salesman, department store	5.11 farmer, tenant, operates land with family 5.85 farmer, tenant, owns no capital, animals or machinery	5.07 policeman 5.20 industrial foreman 5.53 undertaker 5.67 electrician, wages 5.97 printer, wages	5.71 beauty operator	
		6.09 bookmaker	6.09 routine office clerk 6.14 post office clerk 6.26 telephone operator	6.50 farm labourer, established	6.07 fitter 6.13 carpenter, wages 6.15 trainer, racehorse 6.38 bricklayer 6.44 cook, restaurant	6.10 barber 6.22 fireman 6.37 machinist 6.42 jockey 6.44 housekeeper 6.49 taxi driver	
D			6.55 shop assistant 6.95 sales person, chain store	6.53 shearer 6.77 drover 6.91 jackaroo		6.57 storeman 6.64 bus driver 6.70 miner	6.66 factory operative 6.90 milk deliveryman
				7.11 shearer 7.33 farm labourer, migratory 7.38 labourer, seasonal		7.01 lorry or truck driver 7.13 railway porter 7.36 barmaid 7.38 wharf labourer	7.14 waitress 7.18 domestic worker 7.44 labourer, unskilled 7.47 roadsweeper

might in practice not always be unconnected with an individual's social ambition.

2.1.3. Age

In addition to social class and gender differences, also age differences correlate with the use of Broad, General and Cultivated diphthongs in Horvath's (1985) Sydney study. Because of the restricted scope of the present study, only those of her results that concern the non-migrant groups are presented in Figure 7 below. Figure 7 consists of six smaller figures: the three small figures on the left-hand side present the distribution of vowel qualities among adult speakers and on the right-hand side, variation among teenagers is presented. The two small figures on top present variation among middle-class speakers, the two at the bottom, lower-working-class speakers, with upper working class in between.

According to Figure 7, teenagers use more General variants and cluster around the less extreme sociolects (SL 2 and 3), while the adults' usage includes also the more extreme sociolects (SL 1 and 4) containing more Broad and Cultivated variants. (Horvath 1985:79.) But the functioning of the age parametre turns out more complicated than this, because also the social class and gender patterns are different in the two age groups (Horvath 1985:81–82). In the following, the usage of Horvath's non-migrant group will be considered more thoroughly, with all the three variables in mind.

If the different age groups in Figure 7 are compared with each other, teenagers cluster around sociolect 2 (General diphthongs), while adult usage spreads more equally over the whole continuum, especially sociolects 1 to 3 (Horvath 1985:84). The overall pattern of socioeconomic class differences reported above in Chapter 2.1.2 is repeated only in the adult group: the proportion of Broad diphthongs (sociolect 1) is the greatest in the group of lower-working-class adults, upper-working-class adults use more General (sociolect 2) and middle-class adults more Cultivated diphthongs (sociolects 3 and 4). In the teenager group, the linguistic patterning of the social groups is different: both lower-working-class and middle-class teenagers have the peak in sociolect 2 (where the proportion of General diphthongs is the greatest). Upper-working-class teenagers' usage has a special pattern: they use mostly sociolects 1 and 3 and have a hollow in sociolect 2. (Horvath 1985:82.)
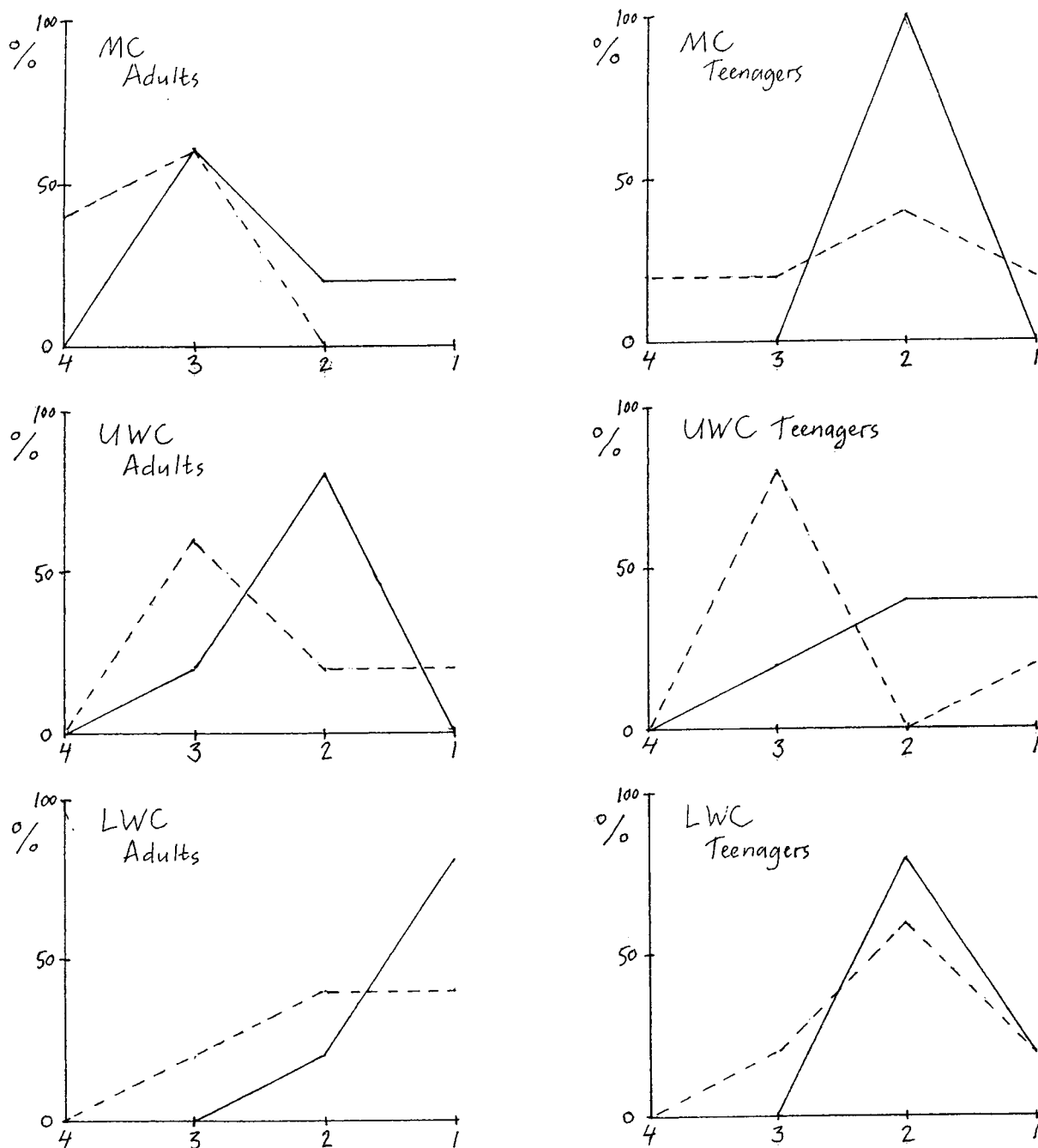
Figure 7. Sociolinguistic variation of the vowel variables /ɪi/, /ɛɪ/, /ou/, /aɪ/, and /au/ among Anglo-Australian speakers in Sydney according to gender, social class and age; adapted from Horvath (1985:81–82,92). The six small figures are organized according to social class and age: middle-class speakers in the two small figures on top, upper working class in the middle, and lower working class at the bottom, adult speakers in the three small figures in the left-hand column and teenage speakers in the right-hand column. Within each small figure, the four sociolects are indicated on the horizontal axis, high-prestige sociolects (4 and 3) to the left, low-prestige ones (2 and 1) to the right. The distribution of female speakers is indicated with a dotted line, the distribution of male speakers with a solid line.

Horvath claims that gender differentiation is sharper among teenagers than among adults (Horvath 1985:81). This is true in her data only if the different social classes are considered together: because social class differentiation of diphthongs is smaller in the teenage group, gender differentiation is seen more sharply than in the adult group, when all the social classes are considered together. When each social class is considered separately, it can be seen that the gender difference exists in every social group in both the age groups and is even greater in the adult speakers' usage (Horvath 1985:81–82,92).

Related with the extralinguistic variable of age is language change in progress. Language change in apparent time is seen when younger speakers are compared with older ones. When change in apparent time is considered within each social class and each gender, both male and female lower-working-class usage appears to have shifted left over the generation, away from sociolect 1 (Broad diphthongs). Both male and female middle-class usage, on the other hand, seems to have shifted right, away from sociolects 3 and 4 (Cultivated diphthongs). Consequently, as mentioned above, lower-working-class and middle-class teenager speakers are clustering around sociolect 2 (General diphthongs). Especially the clustering of male speakers is very marked: over 70 per cent of the male teenagers use sociolect 2. Teenage female speakers use mostly sociolect 3 or sociolect 2. (Horvath 1985:81–82,92.) In both the age groups, sociolect 4 (over 70 per cent Cultivated diphthongs, next to no Broad ones) is used only by some female middle-class speakers, never by any male speakers, at least not in Horvath's study (Horvath 1985:81).

The gender differentiation throws more light on the special sociolinguistic structuring of the upper-working-class teenagers: it appears that both the genders have over the generation shifted away from sociolect 2 (General diphthongs), male teenagers right, towards sociolect 1, but females left, towards sociolect 3 (Horvath 1985:82,92).

Of course, one might argue that social class distinction is less relevant for teenagers from 13 to 18 than it is for adults, and the differences between adults and teenagers might be accounted for by maturational processes. The possibility of treating maturational processes as language change in progress can be ruled out by comparing Horvath's data with Mitchell and Delbridge's data 20 years previously, especially since some of Horvath's adult subjects were then at the final year of secondary schooling and might theoretically have taken part in the

other study as well; most of Horvath's adult subjects are older than that. (Horvath 1985:43,47,90; Mitchell and Delbridge 1965:1.)

If it is assumed that Mitchell and Delbridge use the same criteria for categorizing the speakers into Broad, General and Cultivated (for difficulties of categorization see Mitchell and Delbridge 1965:36–37), and that their selection of subjects is not too different for comparison (for the bias of sample, see Horvath 1985:11–12), the evidence from real time does not support the view that differences between Horvath's adult and teenager groups should be due to maturational processes. In that case, Horvath's non-migrant adult group should have used more General vowels (sociolects 2 and 3) in their youth than they do now, which Mitchell and Delbridge's study does not indicate. On the basis of this evidence it seems rather that the development has been in the other direction and that Horvath's teenage group has taken the tendency still further. (Horvath 1985:90–93.)

According to Horvath, there is language change in progress in Australian English closing diphthongs. In the 1950's, large numbers of immigrants arrived in Australia and they used very broad diphthong variants. As a reaction, second-generation immigrants move away from the broad diphthong variants towards the center of the vowel continua. At the same time in the 1950's, it became acceptable to sound Australian and consequently, the use of Cultivated variants diminished in favour of General diphthongs, which are thus the safest way of sounding Australian. The diphthong with the strongest change at the moment is /aʊ/. (Horvath 1985: 90-95, 175-176.)

To sum up, if the scope of study is restricted to non-immigrant Australian English speakers, as is the case in the present study, gender appears the most important social variable in previous study. Together with socioeconomic class it correlates with the broadness of the diphthong variables so that male speakers and speakers from lower social classes use larger proportions of Broad diphthongs and/or smaller proportions of Cultivated diphthongs than female speakers and speakers from higher social classes. On the basis of Horvath's (1985) study, age correlates with Australian English diphthong quality so that younger age groups favour less extreme diphthong qualities than older speakers, even though this may not apply to every social group.

2.2 Regional Variation

In addition to the social variables, interindividual variation correlates with regional variables. In the following, the part of the present state of knowledge on the regional variation of Australian English vowels which is relevant for the present study will be reported, first the simple vowels, then the closing diphthongs. A map of Australia with the places relevant for the present study is provided in Appendix 1.

Regional variation is not as considerable in Australia as the size of the continent might lead one to expect, especially considering how different the colonial history of the different parts of Australia is (Sherington 1980:25–32; Horvath 1985:32–34). This is probably due to the relatively young age of the colony, to the centralized pattern of colonization and to the vast internal migration from the early days of the colony (Horvath 1985:33; Guy 1991:218–219). Nevertheless, there is some regional variation, especially in the area of vowels, even though blurred by social class and gender variation, which correlate with the same variables. (Horvath 1985:19; Bradley 1989:260–261; Guy 1991:219–220 cf. Mitchell and Delbridge 1965:87; Delbridge 1970:20; Bernard 1981:19.) According to Bradley (1989:260), the regional differences between the capital cities are much less prominent in Australia than the social and stylistic variation according to the degree of broadness within each city.

So far, the studies have concentrated on differences between Sydney (New South Wales), Melbourne (Victoria) and often Adelaide (South Australia); usually also Brisbane (Queensland) and Hobart (Tasmania) are included. No study was available on regional variation in Western Australia or the Northern Territory.

The variation in the degree of closeness of /æ/, in addition to its social distinctiveness reported above in Chapter 1.1.1 (Cochrane 1959:80; Burgess 1968:129,136; Bernard 1970:113–116), has also regional undertones in Australian English: /æ/ and /e/ are extremely raised in Melbourne, somewhat raised in Sydney and the least raised in Hobart and Brisbane. In Melbourne, the quality of /æ/ is very often a mid vowel, according to Bradley (1989) even up to the mid close [e], whereas in Hobart and Brisbane /æ/ tends to be a fairly low vowel. (Bradley 1989:265.) As was also mentioned above in Chapter 1.1.1, the Australian English /ɪ/ has social variation according to its degree of closeness (Cochrane 1959:80; Burgess 1968:136). Its regional variation, however, according to Bradley (1989), affects /ɪ/ on a fronted/retracted axis,

with the most front variety in Melbourne, then in Hobart and the least front variety in Sydney, although the corresponding New Zealand vowel is still further back. The quality of /ʌ/, which varies socially as well (Bernard 1970:116; Cochrane 1959:80) and which is usually identical to that of /aː/ (Turner 1966:99; Clark 1989:209; see above, Chapter 1.1.2), tends to be more fronted in Hobart than elsewhere. (Bradley 1989:265.)

One of the most studied areas of Australian regional variation are the realizations of /ʊu/ and /oʊ/. As was noted above in Chapter 1.3, these vocalic nuclei occupy a fairly unrestricted area of the phonological vowel space (Mitchell and Delbridge 1965:84; Bernard 1970:119,123; Clark 1989:210). Therefore, in addition to phonologically and socially conditioned variation, they are free to vary also regionally, both in tongue position at onset, in the direction of glide and in the degree of lip-rounding. In most speakers, the glides of /ʊu/ and /oʊ/ behave in a somewhat parallel fashion. (Bradley 1989:266.)

The clearest examples so far of regional variation at the level of phonetic realization are the different directions of the word-final /ʊu/ glide (as in the word *zoo*) measured by Oasa (1989): in Sydney, the direction of the glide in his data is backing, in Adelaide, fronting; in Melbourne, the majority of the glides are fronting. The region where nearly all the backing glides are found in Oasa's (1989) study is situated along the New South Wales - Queensland coast; further inland even in New South Wales, the direction of glides is fronting. (Oasa 1989:281.) Slightly parallel phenomena is found in the variation of /oʊ/, even though the phonological environment is not specified: in Adelaide, all the glides are fronting; elsewhere, the directions are mixed (Oasa 1989:284). The South Australian /oʊ/ is reported to be distinctive; according to Bradley (1989:266), it is considerably more forward and rounded than elsewhere. Mitchell and Delbridge (1965:84) report a curiously variable /oʊ/ glide in South Australia in girls of Independent schools, the qualities rangeing from [ɛʊ] and [ɛy] to [oʊ] and [ɒy]. In Oasa's (1989:283) data, the South Australian qualities range from [ɒy] and [ɒɪ] to [ɵ̈y] and [ɵ̈ɪ] and are thus forward-gliding.

The extremely back quality of the South Australian /ʊu/ and /oʊ/ before a following lateral has achieved the status of a regional stereotype (Oasa 1989:273–275; Bradley 1991:233). Also in Melbourne, the quality of prelateral /ʊu/ (*school, pool*) is very back; in Sydney and Brisbane, the backing is not equally radical (Oasa 1989:274–275). This leads one to wonder whether the regional variation applies to the quality of /l/ rather than to that of the preceding vowel.

There is some disagreement about the nature of regional variation of the frontness of /ʊu/ in preplosive environment. In Oasa's (1989) data of 140 tertiary students aged 18 to 33, speakers from Sydney and Brisbane have more fronted qualities than those from Adelaide and Melbourne (Oasa 1989:274). In Bradley's (1989) stratified random sample of about a hundred people from both high and low status suburbs, however, the most fronted sounds, considerably front of central, are found in some Adelaide speakers of higher socioeconomic backgrounds. In other cities, the quality of preplosive /ʊu/ is according to Bradley usually central or slightly more back. (Bradley 1989:266.)

The regional variation of lip-rounding is disputed as well. According to Bradley (1989), the lip-rounding in both /oʊ/ and /ʊu/ is the most considerable in Adelaide, involving both projection and compression. Elsewhere, lip-rounding involves mainly compression and is more noticeable in Melbourne and Hobart than in Sydney and Brisbane. (Bradley 1989:266.) Oasa's (1989) observations of the word *zoo* are quite the contrary: no lip-rounding is noticed with most Adelaide speakers, nor with the majority of Melbourne speakers either, but in Sydney, lip-rounding is observed in most cases; no particular regional variation in lip-rounding is noted in the word *boot* (Oasa 1989:274,282).

There are no remarks in the literature available on regional variation in the rest of the closing diphthongs, except for the overall degree of Broadness: diphthongal variation tends towards the more Cultivated end of the continua in Melbourne and towards the Broader end in Brisbane, Sydney falling in between the two. In the same way, there is variation between the accents of the capital cities and of the surrounding countryside: at least in Victoria and New South Wales, speakers from smaller centres tend to have broader accents than speakers from the capital cities Melbourne and Sydney. (Bradley 1989:262.) This is noticed already in the Mitchell and Delbridge (1965) study: outside the capital cities, 43 per cent of the secondary school students studied have Broad accent against 23 per cent in the capital cities and again, only 4 per cent have Cultivated accent against 19 per cent in the capital cities (see Table 10 below) (Mitchell and Delbridge 1965:39,44).

In the Mitchell and Delbridge (1965) study, differences between city and countryside in the gender pattern in the use of diphthong qualities are referred to but the exact numbers are not reported. The gender pattern is roughly reported in students whose father's occupation is rural (grazier, farmer, stock inspector, forestry manager, orchardist, cattle classer, drover, cream grader, soil

Table 10. Correlation of Australian English diphthong quality with place of living and father's urban occupation vs. other occupations; adapted from Mitchell and Delbridge (1965:32-44). The numbers marked with an asterisk are reconstructed by the present author on the basis of rounded percentages.

	Cultivated		General		Broad		all	
all	747	11%	3939	55%	2396	34%	7082	100%
girls	672*	18%	2369*	63%	714	19%	3755	100%
boys	75*	2%	1570*	47%	1682	51%	3327	100%
Place of living								
capital cities	603	19%	1911*	58%	779*	23%	3293*	100%
other centers	144	4%	2028*	53%	1617*	43%	3789*	100%
Father's occupation								
rural occupations	70*	6%	629*	53%	505	41%	1204*	100%
girls	64*	9%*	441*	61%*	217	30%*	722*	100%
boys	6*	1%*	188*	39%*	288	60%*	482*	100%
other occupations	677*	12%	3310*	56%	1891	32%	5878*	100%
girls	608*	20%*	1928*	64%*	497	16%*	3033*	100%
boys	69*	2%*	1382*	49%*	1394	49%*	2845*	100%

conservationist), but strictly speaking, the difference between rural occupations vs. other occupations is not regional. Most students whose father's occupation is rural live outside the capital cities, but some of the students whose father's occupation is rural live in the capital cities: they might attend boarding school or their father might work in the city. Nevertheless, the distribution of vowel qualities among 'rural occupations' resembles that of 'other centers': rural occupation correlates positively with use of Broad diphthongs and negatively with use of Cultivated diphthongs; even the percentages are similar. In the group 'rural occupations', the gender pattern differs from 'other occupations' in that girls use a clearly larger proportion of Broad diphthongs and their use of Cultivated diphtongs is very low. In the boys of this group, the use of Broad diphthongs dominates more than in 'other occupations'. (Mitchell and Delbridge 1965:19,31-44.)

Horvath's (1985) study describes later development of diphthong variation in Sydney. How much of the development is specific to Sydney is not reported but since the change in progress in Sydney diphthongs is caused by immigrant English, then this change will probably be the most advanced in the places with the most immigrants, like Sydney and other capital cities. This

would mean that in Sydney, diphthong quality among younger speakers would tend to be less extreme than in places with less immigrants (see discussion of Horvath's results above in Chapter 2.1.3). This idea agrees with Mitchell and Delbridge's view in the broadest speakers being found outside the capital cities, but it disagrees with Mitchell and Delbridge's view in the most Cultivated speakers: according to Mitchell and Delbridge, the most Cultivated speakers are found in capital cities (Mitchell and Delbridge 1965: 39,44), whereas Horvath's train of thought would imply speakers moving away both from the Cultivated end and from the broad end of the diphthong continua in places with a large proportion of immigrants, like Sydney (Horvath 1985:79). It is possible that this difference of opinion between Mitchell and Delbridge (1965) and Horvath (1985) denotes a change in the pattern of variation between city and countryside.

2.3 Stylistic Variation

In the present chapter, the present state of knowledge on stylistic variation in Australian English will be sketched. Specifically Australian English studies in this field of study are few and far between and therefore also aspects of general theories of stylistic variation will be shortly reviewed.

Although stylistic variation is a controversial field of study, there is a general consensus that style correlates with the same variables as social class and gender. Thus the more prestigeous variants correlate not only with middle class and female gender, but also with the more formal styles; the variants with less overt prestige correlate not only with lower working class and male gender, but also with the less formal styles. (Labov 1966a:405; 1972:240; Bell 1984:151; Finegan and Biber 1994:317.)

Owing to this fact, stylistic variation has a tendency to complicate the picture of sociolinguistic variation. Mitchell and Delbridge report that even though the diphthong quality in Australian English correlates with social variables, the general impression is that anyone can say anything and people using Broad, Cultivated and General diphthongs can be found within the same family (Mitchell and Delbridge 1965:87; cf. McCrum and al. 1986:296). In Labov's Lower East Side of New York City study, the same kind of hazyness of social variation appears to disguise a regular, though complicated pattern of variation: a great range of social variation *plus* widespread stylistic variation (Labov 1966a:36–38,569; 1972:70).

A certain degree of consensus exists also about the so-called observer's paradox: about the primacy of the vernacular as the material of sociolinguistic study and about its unattainability on tape (Labov 1966a:91; 1972:208–209; Milroy 1987:59; Rickford and McNair-Knox 1994:265). Vernacular, the everyday casual speech between peers, is the most systematic speech style and the variety where sociolinguistic innovations are initiated. It cannot be systematically observed because being tape-recorded (especially by a stranger), speakers will tend to shift towards a more formal speech style. (Labov 1972:208–209; Milroy 1987:59.) Thus, for example, Bernard (reported in Delbridge 1970:19) reports that the Broad Australian accent of several of his subjects became General by the time they got to the studio.

The consensus in the study of stylistic variation breaks down when it comes to the factors behind the variation, the number of axis along which stylistic variation occurs and the question whether writing or reading and speech

could be said to form a stylistic continuum. In the following, several different approaches are introduced, offering varying points of view to stylistic variation: first, the pioneering and already classical view of Labov (1966a, 1972), then Biber's (1988) and Finegan and Biber's (1994) view of involved versus informational production and finally, Bell's (1984) audience design and Giles's accommodation theory (Giles 1973; Giles and Smith 1979; Thakerar and al. 1982) accompanied by a summary of some research into foreigner talk. Towards the close of this chapter, Labov's (1972) and Trudgill's (1986) markedness theory is applied to the study of Australian English closing diphthongs. Much of the specifically Australian study available in this field of study consists of study of attitudes toward the variation of closing diphthongs and will be reviewed in Chapter 2.3.6.

2.3.1 Attention Paid to Speech

Labov's (1972) approach to stylistic variation is unidimensional: all imaginable speech styles (including also different forms of reading) can be arranged according to the amount of attention paid to the form of speech. In the test situation, Labov (1972) distinguishes between up to five different speech styles: casual speech, careful speech, reading style, word list style and minimal pairs. The amount of linguistic self-monitoring or attention paid to speech is greatest in minimal pairs and smallest in casual speech. (Labov 1972:99,208.)

Labov's (1972) theory predicts that the more formal the speech becomes, the less systematic the variation, because different variables behave differently in relation to attention paid to speech: certain variables, which are called indicators, undergo social class variation but do not style-shift in any great amount, whereas certain other variables, called markers, vary both socially and stylistically. The theory specifies that markers are higher up in the speakers' consciousness and will produce regular responses in subjective reaction tests. Very strong markers, which attract overt social comment, are called stereotypes. (Labov 1972:178–180,314; Bell 1984:154; Trudgill 1974:98; 1986:10.)

Certain social groups, notably women of the lower middle class, are prone to extensive stylistic variation in the more formal styles, even to the extent of hypercorrection: they can surpass the upper middle class in the use of the prestige variant or overgeneralize its usage into new linguistic contexts (Labov 1972:126, 243–244). Labov (1972) interprets that lower-middle-class

speakers are linguistically insecure and pay more attention to their speech than speakers from other social groups. In addition to excessive stylistic variation and conscious striving for correctness, their linguistic insecurity is according to Labov (1972) evidenced by their great fluctuation within a given stylistic context and their strongly negative attitudes towards their native speech pattern, which are shown in the New York City study among others in the great disparity between their reports of own usage versus correct pronunciation in a test of eighteen words. (Labov 1972:117–118,132.) According to Trudgill (1974:92,94,132) and Labov (1972:242–244), hypercorrect behaviour may, at least in special cases, be observed also in upper-working-class male speech. In Trudgill's (1974:94) Norwich data, hypercorrection is observed in the speech of upper-working-class males and lower-middle-class females.

Women in general show more style-shifting than men (Labov 1972:243). The reasons behind this behaviour are disputed; explaining it merely as a product of female social insecurity appears an overgeneralization (Trudgill 1974:94; 1983:167–168; cf. Cameron 1988:8–10; Cameron and Coates 1988:15–17).

Looking for casual speech, Labov (1966a) lists situations where the informant's attention is not directed to the form of speech: before the interview begins or after it has ended and the interviewer has packed up; interruptions, when the informant is serving coffee or beer; speech not in direct response to the questions, like digressions from the topic; and speech adressed to a third person, like scolding the kids or answering the telephone. Labov (1966a) uses certain, emotionally loaded interview questions, like a question about whether the informant has ever been in a danger of death situation, to create a shift towards casual speech: when the emotions catch all the attention, less attention is paid to the form of speech. He also uses questions about childhood rhymes and customs, partly because the topic is emotional and partly because the rhymes often require the use of the vernacular. (Labov 1966a:101–108.) He notes that the most advanced tokens characteristically appear in excited, emotionally engaged social exchange with peers, but also in emphatically stressed words in personal narratives (Labov 1994:158).

Labov's (1966a) attempts to distinguish casual from careful speech on the basis on paralinguistic phenomena (called 'channel cues') are problematic. His channel cues include different kinds of laughter and a change in either the speech tempo, the pitch range, the volume or the rate of breathing. If at least one of the channel cues is present in one of the contexts for casual speech listed

above, Labov defines the speech casual. (Labov 1966a:101,110.) Problems with this definition include the decision how long after a prosodic change the speech can be called casual and the fact that not every kind of laughter expresses relaxation (Wolfram 1969:58–59; Rickford and McNair-Knox 1994:238; cf. Labov 1972:90). In later study, Labov (1989) gives up the distinction, bringing casual and careful speech together as spontaneous speech (Labov 1989:11). Working in the same tradition, Trudgill (1974) avoids the use of channel cues by separating careful and casual speech on the basis of topical contexts alone or by treating earlier sections of the interview as more careful and later sections more casual in style (Trudgill 1974; cf. Rickford and McNair-Knox 1994:238).

Bell (1984:182) argues that the style shift noticed in connection with speech addressed to a third person might be caused by the addressee and that the shift in connection with the danger of death question might be caused by the topic, not necessarily by the amount of attention paid to speech. In New York City, risk to personal safety is usually discussed only with intimates, therefore intimate style is used. (Bell 1984:182.) In Belfast, on the other hand, the question could quite routinely be asked by a journalist and it does not trigger a great style shift (Milroy 1987:40,183).

2.3.2 Involved versus Informational Production

Biber (1988) distinguishes between six different dimensions along which the styles of spoken or written texts vary. The most important of these dimensions is called 'involved versus informational production'. (Biber 1988:104-109.) Finegan and Biber (1994:321) specify at least three situational parameters correlating with the style of a text on this dimension: opportunity for careful production, purpose of communication and degree of shared context. An example of two text types at the opposing ends of the continuum would be face-to-face conversation between intimates at the involved end and academic prose at the informational end. From the point of view of the three situational parameters, conversation is produced on-line whereas academic prose is subject to extensive planning and revision (opportunity for careful production); academic prose conveys information whereas conversation between intimates usually conveys both informational and affective messages (purpose); intimates in face-to-face conversation share the same temporal and physical surroundings plus a lot of common background and personal knowledge and interact freely whereas in academic prose the author and receiver are often unknown to each

other, separated by time and space, with no direct interaction and little shared background (degree of shared context). (Finegan and Biber 1994:322–324.)

Finegan and Biber (1994) see style as a result of two opposing forces: clarity versus ease of expression. They apply their theory in the area of syntax: because of its informational purpose, small degree of shared context and great opportunity for careful production, academic prose requires clarity and explicitness of expression. Therefore, it contains more features of elaboration like prepositional phrases, attributive adjectives and lexical diversity and less features of economy like contractions, *that* deletions in verb complement clauses, the referential pronoun *it* and the pro-verb *do* than conversation. Face-to-face conversation, on the other hand, can rely more on implicit communication because of less emphasis on conveying factual information and a great degree of shared context. Because of on-line production, it favours shortness of expression. Conversation therefore uses more features of economy and less features of elaboration than academic prose. (Finegan and Biber 1994:320–326.) Measured on the basis of several syntactic features, also spoken styles are scattered along the dimension of involved versus informational production, with broadcasts and prepared speeches quite near to the informational end of the continuum, telephone and face-to-face conversations at the very involved end, and interviews and spontaneous speeches halfway between these two groups (Biber 1988:128).

Finegan and Biber's (1994) dimension of involved versus informational production resembles at certain points Labov's (1972) distinction between informal vs. formal styles reported above. First, the ultimate example of the extreme informal end of Labov's (1972) continuum - excited, emotionally engaged social exchange between peers or intimates - is also a good example of the involved end of Finegan and Biber's (1994) continuum, both from the point of view of degree of shared context and from the point of view of opportunity for careful production and purpose of communication. Second, the fact that Labov (1966a) uses the questions about emotional topics like danger-of-death situation and childhood customs to elicit casual speech, arguing that emotions divert attention away from the form of speech, agrees with the affective purpose of communication of the involved end of Finegan and Biber's (1994) continuum. Furthermore, Labov's (1966a) channel cues and the contexts he gives for casual speech could be argued to be connected with affective messages rather than informational ones. (cf. Finegan and Biber 1994:322-324, Labov 1966a:101-110.)

In the other end of the continuum, the similarities are not equally striking, possibly because Labov's (1972) dimension of formal vs. informal styles was designed for the analysis of the phonetic variables of speech, whereas Biber's (1988) and Finegan and Biber's (1994) dimension of involved vs. informational production was designed for the analysis of syntactic phenomena in both spoken and written language. Consequently, Biber's (1988) and Finegan and Biber's (1994) dimension does not include styles where no clauses occur, like Labov's word list style and minimal pairs; Labov's (1972) reading passage style might perhaps correspond to the genres of prepared speeches or broadcasts, which are the spoken genres nearest to the informational end of Biber's (1988) dimension. (Labov 1972:99,208; Biber 1988:108; Finegan and Biber 1994:325.) One might argue that the differences in syntactic features between involved vs. informational production described by Finegan and Biber (1994) would probably exist also between Labov's (1972) casual speech and careful speech or reading passage style, only Labov's (1972) interest lay with the phonetic variation; however, this has not been proved.

From the point of view of opportunity for careful production and purpose of communication, Labov's (1972) styles of minimal pairs, reading passage and word lists are not produced on line like face-to-face conversation and they do not carry the same kind of affective meaning. On the other hand, word lists and minimal pairs and reading a given passage out loud do not appear to carry very much of an informational message either, neither would they appear to contain exactly the same kind of opportunity for extensive planning and revision as for instance academic prose.

If Finegan and Biber (1994) and Labov (1972) are considered as talking about the same dimension, certain questions arise. At the level of syntax, the principles of ease versus clarity can be used to explain part of stylistic variation. At the level of phonetic realization, however, these principles are not always applicable: the pronunciation [ʌɪ] for /ɛɪ/ is not any easier to produce than [ɛɪ]. One could also argue that, even in the area of syntax, speech activities with interpersonal, affective purposes not only "*permit* greater tolerance for the ease mandate - - - because precise, elaborated expression is generally less crucial" (Finegan and Biber 1994:323; emphasis mine) but that they *require* greater use of "economy" features because explicit, elaborated expressions would not convey the same affective meanings (cf. Trudgill 1972:184). Non-standard registers, through their use of implicit and ingroup expressions which refer to shared background, convey affective meanings of solidarity, intimacy

and group identity (cf. Ryan 1979:147,151). This phenomenon is connected with that of covert prestige (Trudgill 1972:183–194), which will be discussed more thoroughly below in Chapter 2.3.6.

Summing up, Finegan and Biber (1994) offer concrete criteria for distinguishing between different registers, but it is not certain if their theory can be applied in the study of phonological variation. Labov (1966a; 1972) and Trudgill (1972) offer useful information about phonological variation but very few criteria for distinguishing between formal and informal speech in a natural situation. For the purposes of the present study, it will be expected that Finegan and Biber's (1994) registers correlate with Labov's (1966a; 1972) and Trudgill's (1972) styles sufficiently enough in order to be helpful in studying real-life data.

2.3.3 Audience Design, Accommodation, and Divergence

In the following, the approaches to stylistic variation by Bell (1984) and Giles (1973 etc.) will be reviewed together, because they have a common point of view: the effect of the hearer on the speech style.

When two people converse, they have a tendency to shift their speech style towards that of their interlocutor and otherwise to adapt to each other's communicative behaviour; this tendency is called convergence or accommodation. According to sociopsychological research, speech convergence may apply to pronunciation patterns, lexico-grammatical usage, speech rate, pause and utterance length, pitch patterns, response latency, and information density among others. (Giles 1973:90,101; Giles and Smith 1979:46; Giles and al. 1991b:7.) Bell (1984) calls the same phenomenon audience design: speakers design their speech style to fit their audience. In the same way that social variation is correlated with measurable social characteristics of the speaker, stylistic variation can be correlated with the social attributes of the hearers. From the point of view of stylistic variation, the most important audience role is that of the addressee, but also the social attributes of auditors (ratified participants in the conversation, present but not directly addressed) and overhearers (known by the speaker to be there but not ratified interlocutors in the group) may have an effect on the style. (Bell 1984:159–160.) Also topic and setting may affect the style but their effect is less than that of the audience (Bell 1984:178–180).

According to Giles's accommodation theory, speech convergence reflects a speaker's desire for social approval; the results of sociopsychological research

indicate that relative similarity of communicative behaviour increases the speaker's social attractiveness, intelligibility, communicative effectiveness, predictability, and perceived cooperativeness and warmth in the eyes of the interlocutor (Giles and al. 1991b:18–19). Convergence towards a high-prestige accent increases the speaker's perceived social status and perceived competence as well as makes his message more persuasive to the recipient (Giles 1973:101). Convergence is especially marked in a speaker who strongly needs the approval of the conversation partner (Natalé 1975:792). This applies both on the psychological (Natalé 1975) and on the external, interpersonal level: if the addressee is of a higher social status and the speaker anticipates future interactions with the addressee, the amount of convergence increases (Giles and Smith 1979:47).

Bell (1984:170) lists further situations which strengthen the addressee effect: public speaking and customer service. When a speaker representing a service institution is attempting to put the clients at their ease and to win their cooperation, he/she is likely to use a relatively high degree of convergence (Coupland 1984:60–68). Even more pressure to audience design is contained in radio news reading, where representing a service institution is combined with speaking to a large audience. In a study of the same newscasters reading news to different radio stations in the same studio, the addressee effect is clearly demonstrated. All the newscasters vary their speech in the same direction between two radio stations with different audiences. Even though the audiences are not physically present, the newscasters' adjustments correspond to the general differences of speech pattern between the two audiences. (Bell 1984:171–172,192.)

As a sign of cooperation, convergence is apparently the norm in conversation also in situations less extreme than these: speakers more often desire their interlocutor's social approval than not (Giles and Smith 1979:47). Even in an emotionally neutral situation, convergence still exists (Bourhis and Giles 1977:130; Bourhis and al. 1979:173). Non-accommodation or speech maintenance is no less active than convergence. Implicitly, it may signal non-appreciation: the speaker does not bother to seek the interlocutor's approval (Giles and al. 1991b:10,26).

Divergence, the modification of speech away from the interlocutor or actual language shift, has been connected in the literature with group dynamics: in certain situations people react to each other as representative members of different social groups. By divergeing from the communicative behaviour of the

members of the outgroup in reaction to unfavourable characteristics, attitudes or beliefs in the interlocutors, the speakers converge with linguistic communicative norms of their own reference group (in Bell's terms, 'referees'), not necessarily present in the situation. (Giles 1973:90; Bourhis and Giles 1977:128–129; Thakerar and al. 1982:213–214; Bell 1984:186–187; Giles and al. 1991b:27.) Bell treats divergence as one type of initiative style shift whereby the speaker redefines the nature of the interaction rather than merely mirroring the style of his/her interlocutors (Bell 1984:183). In laboratory settings, the situation has to be very threatening, arrogantly challenging or provoking for speech divergence to occur (Bourhis and Giles 1977:129; Bourhis and al. 1979:171–175,182–183; Bourhis 1985:124; Giles and Smith 1979:52–53), because divergence, especially maintenance of divergence, is often perceived by its recipients as impolite or downright hostile (Giles and al. 1991b:28) and has a tendency to break up the conversation (Bell 1984:188).

All the stylistic variation cannot be explained as naturally from the audience accommodation point of view. In certain contexts, situational constraints may overrun the norms of speech accommodation: in a job interview, the candidate is expected to adopt a refined speech style even though the interviewer were using a broad accent (Ball and al. 1984:125–129). Another example is the diglossic situation where the prestige form is not native to any group in the speech community but is nevertheless used by common consent for certain functions. Bell calls this pattern of language use, like the divergence of radio announcers in prestige broadcasting in New Zealand towards the RP, 'outgroup referee design' where prestige is given to the accent of a distant referee group and, in this case, has become institutionalized as the virtual norm of prestige broadcasting in New Zealand. (Bell 1984:172,189–195.)

Accommodation does not necessarily make the speech of the two speakers more alike because it applies on the subjective level: the speaker converges towards the communication patterns he believes to be characteristic of the conversation partner (Thakerar and al. 1982:248). Moreover, like situational stylistic variation, accommodation affects markers more than indicators (Trudgill 1981:226). In more complex situations of accommodation like long-term accommodation between geographic accents, which in Trudgill's study are the British and American accents of English, additional regulating factors include intelligibility, the possibility of homonymic clash, and the social meanings of the different variants in one's own country (Trudgill 1981:229–231).

According to Giles and Smith (1979), accommodation has psychological limits: they claim that in a cross-cultural situation, total accommodation might threaten the cultural distinctiveness of the addressee. They suggest that in each situation there is an optimum level and optimum rate of accommodation (Giles and Smith 1979:62).

Summing up, speakers design their speech style to fit their audience, even though this cannot be used to explain all the stylistic variation in speech.

2.3.4. Foreigner Talk

In the following, previous study on a special type of accommodation will be reviewed, namely accommodation in speech addressed to foreigners.

Foreigner talk or foreigner register means the adjustments a native speaker makes in his/her speech when interacting with a non-native speaker. It has been interpreted as a kind of accommodation (Ferguson 1971:143–144; Ellis 1995:252–253). The amount of foreigner talk and the features adjusted vary, depending on the language proficiency of the non-native speaker and the personality and attitudes of the native speaker (Zuengler 1991:234–238). The adjustments may include slower speech rate, more careful pronunciation, increased volume, use of repetitions and confirmation checks, shorter and simpler sentences, more questions and question tags, and restricted vocabulary among others, or just one or a few of these; some adjustments may even be ungrammatical. (Hatch 1983:155–158; Ellis 1985:135; Zuengler 1991:234.) On the other hand, in certain situations the non-nativeness of the addressee may cause the speaker to use more correct or standard language (Ferguson and DeBose 1977:105–106) or elaborate more on the topic (Ellis 1995:254–255).

Again, the adjustments are not always well-matched: an industrial foreman who himself is a second generation immigrant may use foreigner talk with Greek intonation and phonology when talking to non-native workers irrespective of their ethnic background; another may use features of Slavic intonation together with his Northern English phonology. Nevertheless, workers with poor English report that the foreigner talk facilitates the understanding. In the same way, a second generation Australian dentist of Hungarian background reports that his Italian and Greek patients appreciate it if he uses 'a European accent' with them; his foreigner talk includes features of Hungarian phonology and some deviations at the syntactic and lexical levels, but to his brothers,

sisters, cousins, and other Australians he employs General Australian English. (Clyne 1981:69–72.)

Accommodation, as well as foreigner talk, has the function of promoting understanding but in foreigner talk this function often is in the foreground. Other possible functions of foreigner talk as perceived by the non-native speaker include the talking-down function: assigning the non-native speaker the role of a learner. (Zuengler 1991:235–237.) This function might be related to the phenomenon of limits of accommodation: native speakers might not want the foreigner to talk exactly like themselves.

Summing up, foreigner talk means the adjustments made by a native speaker in his/her speech when speaking to a non-native speaker. These adjustments may include among others slower speech rate and more careful pronunciation or usages believed to be characteristic of the addressee's speech.

2.3.5 Markedness of the Australian English Closing Diphthongs

In the following, Labov's (1972) and Trudgill's (1986) markedness theory will be shortly reviewed and applied to the study of Australian English closing diphthongs.

Trudgill (1986) offers a list of the factors which cause an indicator to become a marker and thus to undergo stylistic variation. There may be

a) loss of phonological contrast involved,

b) a vast phonetic difference,

c) overt stigma, especially if standard variant is nearer to the orthography or

d) a linguistic change in progress.

Without at least one of these factors, a linguistic variable will normally be an indicator. (Trudgill 1986:6–11.)

Labov (1972) and Trudgill (1986) call very strong markers 'stereotypes': they attract overt social comment, which may be either positive or negative (Trudgill 1986:10; Labov 1972:180,314). Wardhaugh (1986) defines a stereotype as a rough and ready popular characterization and categorization of the speech of a certain group, which does not need to conform to reality (Wardhaugh 1986:137–138). Examples in Labov (1972) of stereotypes and of the kinds of social comment they attract include the phrases "Dese, dems and doses", which is used to characterize the working class United States pronunciation with interdental stops for interdental fricatives, and "Pahk your

cah in the Hahvahd Yahd", which stereotypes the r-less Bostonian pronunciation with fronted low central vowel [aː]. (Labov 1972:314–317.)

If the social comment is very negative, this may lead to a very rapid extinction of the feature. Actually, the feature in question may already be nearly extinct and survive only as a stereotyped usage of certain words or as a ritual joke. Occasionally, though, heavily stigmatised stereotyped features prove remarkably resistant, because they may have positive prestige to some people, negative to others. (Labov 1972:314–317.)

When Trudgill's criteria for markedness of a sociolinguistic variable are applied to Australian English, it appears that at least some of the diphthong variables are probably rather high in the speakers' consciousness. Thus, in accordance with Trudgill's criterion (b), there is indeed a vast phonetic difference between the starting points of Broad and Cultivated diphthongs, especially in /ɛɪ/, /aɪ/, and /aʊ/, often as vast as almost to cause phonological confusions. As was noted above, the Cultivated Australian English /aɪ/ might occasionally be perceived as the Broad Australian English /ɛɪ/ (Robertson reported in Delbridge 1970:28–29); the phonological contrast, however, is not endangered (criterion (a)) in the speech of any single speaker because of the chain shift (Wells 1982:256–257).

In accordance with Trudgill's criterion (d), Horvath (1985) reports that there is a linguistic change in progress in the diphthongs in her study; included in the study are the diphthongs /ɪi/, /ɛɪ/, /aɪ/, /oʊ/, and /aʊ/. In the Sydney speech community she studies, /aʊ/ is the diphthong embodying best the complexity of the change processes going on, /ɛɪ/ following close behind and /oʊ/, /ɪi/, and /aɪ/ changing at a slower rate. (Horvath 1985:75–77, 90–94.)

According to the Trudgill (1986) criterion c), also the overt social comment that the diphthongs attract gives us a good reason to assume that at least some of the Australian English diphthongs are very strong markers indeed. Mitchell (reported by Turner 1966:107) cites a teacher lecturing to the pupils (transcription conventions original, not mine): [juː mʌsnt sʌi "ʌi" ; juː mʌst sʌi "ei"], a comment which demonstrates the stigma of the [ʌɪ] variant of /ɛɪ/ as well as the fact that the stigmatized variant still survives at the time of the observation even in the speech of a teacher.

In the newspapers as well, when it comes to the Australian English pronunciation, it is the Australian diphthongs above all, /ɛɪ/ in particular, which receive criticism. Baker cites examples already from the 19th century

newspapers: people are complaining that Australians say "'kike' for 'cake' and 'gripes' for 'grapes'" (Baker 1966:434). It is diphthongs as well that the famous Australian Dame Nellie Melba is reported complaining about: "our twisted vowels, our distortions and flatness of speech which, as I notice with regret, seriously prejudice other people against us". She specifically mentions the pronunciations *oi* for *I*, and *ahee* for *ay* (in "may" or "say"), obviously meaning the diphthongs /aɪ/ and /ɛɪ/. (McCrum and al. 1986:297.)

According to Baker (1966), the diphthongs /ɛɪ/ and /au/ are the sounds which cause the popular (generally negative) judgement that Australians talk like Cockneys. In the letters to the editor, severe measures are called for to eradicate this "Cockney vulgarity" (imported with the convicts) from the speech of Australian schoolchildren: "If it remains in familiar terms with society for a few years longer, it will become the accepted pronunciation of the country and pass as 'good form'". (Baker 1966:433–434.)

As a popular stereotype of Australian English speech, the [ʌɪ] pronunciation of the diphthong /ɛɪ/ also features in Australian jokes: there is the one about the old Australian chap at the Second World War Pacific front, who asked the frightened American newcomer: "Ditcha come here to[dʌɪ]?". Or then there is the one reported by Turner (1966) about why Britons do not play cricket in the same team with Australians – because when the Australian calls 'Wait!', the Briton understands 'Right!' and begins to run (Turner 1966:101). Both /au/ and /ɛɪ/ also feature in the stereotypic phrases that are sometimes used to demonstrate what the Australian English accent is like: "How now brown cow?" and "G'day mate".

To sum up, judging along the Trudgill (1986) criteria, it appears that at least some of the Australian English diphthongs are rather high in the speakers' consciousness, and might be called strong markers or even stereotypes. On the basis of the above, /ɛɪ/ would seem to be the most obvious stereotype in Australian English, /au/ and perhaps /aɪ/ as well. If this is true, then stylistic variation plays an important part in the variation of the Australian English closing diphthongs.

2.3.6 Australian Attitudes towards Diphthong Variation

Except for study on accommodation and foreigner talk, much of the specifically Australian English study available on stylistic variation consists of the study of

attitudes toward the variation of closing diphthongs, which will be reviewed below.

As was mentioned above, the three-point social accents scale of Australian English is set up mainly on the basis of closing diphthongs (Mitchell and Delbridge 1965:33-35). In Horvath (1985), also some consonantal variables correlate with Broad, General, and Cultivated Australian English and Horvath argues that the diphthongs are losing some of their force as sociolinguistic variables maintaining the gender distinction, especially at the Broad end of the diphthong continuum (Horvath 1985:171-176). Still, a great part of Australian reactions to Broad, General, and Cultivated Australian English is related to the diphthong variables.

The studies on Australian reactions to Broad, General, and Cultivated Australian English uncover ambivalent attitudes: on the one hand, the Cultivated accent is appreciated as depicting intelligence and status (Seggie and al. 1982:349–350); on the other hand, it is rejected as artificial and posh (Eagleson 1989:156). Broad accent is judged to be crude (Guy 1991:224) but also to show solidarity and friendliness (Ball and al. 1989:94).

According to sociolinguistic theory concerning language attitudes, two dimensions of prestige can be discerned, those labelled overt vs. covert prestige (Trudgill 1983:172–177). On the dimension of overt prestige, Cultivated diphthongs are ranked higher than Broad ones: they are associated with status, prestige, and privilege and with competence-related personal characteristics like intelligence (Seggie and al. 1982:349–350; Berechree and Ball 1979 reported in Ball and al. 1989:94; Eltis 1989:107). University students also link Cultivated Australian English to reliability and honesty (Seggie and al. 1982:349–350). According to a study on how accent affects classroom judgements about pupils, teachers rank pupils who speak with a Cultivated accent higher on all characteristics, but the differences are the greatest on characteristics related to learning ability and competence, such as verbal ability, intelligence, and success as a student, plus self-confidence (Eltis 1989:106–107).

Still from the point of view of overt prestige, Broad diphthongs, the most indigenous Australian ones, are regarded as crude (Guy 1991:224). The complaint of Dame Nellie Melba cited above about the twisted Australian vowels is directed againts the Broad Australian pronunciations. In the attitudinal studies, Broad accent is ranked low on scales of femininity and competence; Broad female speakers are ranked extremely low on the scale of competence. The Australian questioning intonation, which in Horvath's study clusters with

General and Broad accents but not with Cultivated accent, is ranked low also on scales of job-suitability and maturity. (Berechree and Ball 1979 and Guy and Vonwiller 1984 reported in Guy 1991:224; Horvath 1985:157–158.) According to another study on reactions to accent change in an employment interview, downgrading to Broad accent by the interviewee evokes negative reactions no matter how broadly the interviewer himself is speaking (Ball and al. 1989:100).

On the other dimension, covert prestige, Broad diphthongs are, however, viewed as unaffected and earthy, indicating friendliness, solidarity, humorousness, talkativeness, self-confidence, and masculinity (Berechree and Ball 1979 reported in Guy 1991:224; Seggie and al. 1982:349–350; Ball and al. 1989:94). Even in the study of teacher reactions to pupils' speech style, where Cultivated speakers are ranked higher than Broad speakers on all characteristics, the advantage of Cultivated speakers is not as great on social characteristics such as co-operativeness, friendliness, gentleness (vs. toughness), and reliability, even though the accent hierarchy persists (Eltis 1989:107).

From the point of view of covert prestige, Cultivated diphthongs are rejected as socially unattractive, artificial, affected, Pommy, sissy, and effeminate (Berechree and Ball 1979 reported in Ball and al. 1989:94; Eagleson 1989:156; Baker 1966:455). Cultivated male speakers are ranked very low on the scale of perceived self-confidence (Berechree and Ball 1979 reported in Guy 1991:224). The question of reliability might be dependent on the observer, as university students regard Cultivated speakers both reliable and honest (Seggie and al. 1982:349–350), but some other observers think of them as distrustful (Baker 1966:455); another possible explanation would be that there are flaws in the matched guise technique used by Seggie and al. (1982).

There has been discussion (Leitner 1984) about whether the standard or overt prestige variety in Australia is Cultivated Australian English or some form of British English, probably the Received Pronunciation. Attitude studies using variants of matched guise techniques suggest that the tendency to look to RP as the standard variety still exists (Berechree and Ball 1979 and Ball 1983, reported in Ball and al. 1989:94). In another study (Gallois and Callan 1981:353–355), British middle class male speakers are ranked higher than General Australian male speakers both on the scales of favourability (described by the adjectives *pleasant, likeable, helpful, good*) and power/activity (*strong, powerful, active*).

A study of language attitudes as shown in letters to the editor in *ABC Weekly* from 1939 to 1959 makes the picture a bit more complicated: the letter

writers almost unanimously condemn Broad pronunciations of those vowels where the Broad variant is very different from both Cultivated Australian English and from the Received Pronunciation. All of the vowel phonemes like this are remarked on several times; /ɪi/ is an exception, as it is commented on only once. But in the vowel phonemes where Broad and Cultivated Australian English are nearer each other and differ equally much from the RP, the Australian practice is favoured over RP or the difference is not noticed or commented on at all: the British variants of /aː/ and /ɛ/ are rejected as mistakes or foreign pronunciations and there are no comments on the frontness of the Australian English /ʊu/. Reeve argues that /ʊu/ and /aː/ remain below the level of conscious awareness and have thus not become social markers unlike those vowel phonemes where the Broad variant is very different both from Cultivated Australian English and from the RP. (Reeve 1989:117–118.)

According to previous research, attitudes demonstrating covert prestige are difficult to observe in an interview (Labov 1966b:108; Trudgill 1972:183–188; Ryan 1979:151–155). The overt comments in the speech community may unanimously condemn the use of the local non-standard variant and yet, the existence of covert prestige can be assumed from the fact that the non-standard variant is continually being used (Labov 1966b:108) and it can be demonstrated through linguistic self-evaluation tests (Trudgill 1972:187–188).

In connection with Australian English, then, the standard theory of sociolinguistics would predict that the most indigenous Australian English diphthongs, Broad diphthongs, would be the diphthongs of the vernacular used in much of the everyday communication but difficult to obtain on tape. From the point of view of Horvath (1985), however, the Australian situation is more complex: first, in addition to covert prestige, Broad diphthongs have connotations of national identity. Second, even though in the 1950's, it became acceptable to sound Australian, Broad diphthongs acquired additional stigma because of a large number of immigrants who used very broad diphthong variants. Consequently, General diphthongs became the safest way of sounding Australian. (Horvath 1985: 90-95, 175-176.) In the case of Australian English, then, it would be interesting to know how the vernacular would be defined nowadays.

THE PRESENT STUDY

3 RESEARCH DESIGN

In the following, the research design of the present study will be introduced: first, the research question, then, the material, the selection of data, and the analysis procedures.

3.1. Research Question

The purpose of the present study is to understand the variation of Australian English closing diphthongs /ɪi/, /uu/, /ɛɪ/, /ou/, /aɪ/, and /au/ in two language course materials. The present study aims to answer the following questions:

How do the diphthongs in the two materials vary

a) within the materials

b) across the two materials?

What does the sociolinguistic, regional and stylistic variation described in previous study look like in these materials?

What kind of diphthongs does each speaker produce?

The present study concentrates on the social, regional, and stylistic variation according to the degree of broadness. In Chapter 4, the results of the phonetic measurements will be presented and the diphthongs under study will be organized according to their degree of broadness using previous study on the phonetic variants of the Australian English closing diphthongs presented above in Chapter 1. In Chapter 5, the diphthong variation in the present data will be considered from the point of view of the different theories of variation reported above in Chapter 2. In the end, a picture of each speaker will be sketched as to their diphthongs and other speaker characteristics.

In the following, the material will be introduced and the extralinguistic variables of the two materials will be compared in order to answer the following questions: how does the choice of speakers differ in the two materials? How do the situational variables differ?

3.2 The Material

The material of the present study consists of *Coffee break: a course in understanding authentic Australian casual conversation* (hereafter *Coffee Break*) and *Down under: talking about Australia and New Zealand* (hereafter *Down Under*), two language courses based mainly on recorded material, both of which claim to present distinctively Australian speech. To show the reader the nature of the material used, extracts of the transcriptions of the primary sources are provided in Appendix 2.

Down Under is a series of educational language radio programmes produced by the Finnish Radio (YLE) in 1988 and designed for advanced learners of English listening to the Finnish Radio or attending an adult language study group or a course of English at school. The objective is for the student to learn to understand the Australian and New Zealand varieties of English in spite of the differences from the British accent. The authors describe the language of the programmes as genuine, even though perhaps not quite easy at the first try. (Aho and al. 1988:2–3.) The realistic future situations where the students will use their listening skills are listening to Australian radio broadcasts, meeting with Australian tourists in Finland or going themselves to Australia as tourists.

Out of the 20 half-an-hour radio programmes of *Down Under*, 15 tell about Australia and the rest about New Zealand. In each of the programmes, one or more Australians are interviewed on their interests, the most often on their work. Supposedly because the series wants to present a varied picture of Australian English, and also probably because it wants to catch the attention of the listener, there is a wide variety of interviewees, including a mayor, somebody who calls himself a prince, a mining superintendent, the director of an aboriginal association, teachers of a radio school, a communications expert from the Flying Doctor Service, a graphic designer, a winemaker, two sheep farmers, a fruit and vegetable farmer, a wildlife tour operator, a cameleer, an aboriginal musician, a prospector, who is also a retired miner, plus some people on holiday. To add to the variety, the people come from different parts of Australia. What does not vary so much is gender; the vast majority of the interviewees are male: fifteen men and only four women.

Coffee Break is a language course material produced by Dorothy Economou and the New South Wales Adult Migrant Education Service in 1985. It is intended for independent study by immigrants whose mother tongue is not English or by people from ethnic minority groups within Australia. (Economou

1985b:v,x.) As the notes of language and culture are in English – although in relatively simple English – quite a good knowledge of some variety of English is expected. The realistic future situations where the students will use their listening skills are coffee break chats in their work places or other everyday social situations (Economou 1985a:1-2); this probably makes their motivation to understand everyday Australian English greater than that of the average Finnish radio listener.

The recorded material of *Coffee Break* contains pieces of coffee break chats with four clerical workers from the Medical Records Department of a large Sydney public hospital, both of supervisory and subordinate positions, three women and a young man (altogether 3.55 minutes) and interviews with the same people (10.50 minutes). The recordings were made in 1983, and the interviews were originally conducted to obtain background information on the speakers of the coffee break chat; Economou asks the interviewees about themselves, their relation to work, their relationships to other workers and about conversations at work. (Economou 1985a:3; 1985b:i,iii,vi-vii,xii.)

In the following, the extralinguistic variables of the two materials will be compared, first the stylistic variables and then, the social and regional ones.

3.3 Extralinguistic Variables in the Data

3.3.1 Situational Variables in *Down Under* and *Coffee Break*

The language of both *Down Under* and *Coffee Break* is authentic, as opposed to scripted language read by actors in studio (Aho & al. 1988:2; Economou 1985b:vi). Economou claims in addition that the style of *Coffee Break* is casual everyday spoken language rather than formal spoken language like lectures and speeches, and she aims at presenting the ordinary everyday spoken language of the average English-speaking Australian (Economou 1985b:v,vii). By 'casual spoken language' Economou may mean something slightly different from what Labov means by 'casual speech' because their theoretical frameworks are different: according to Labov (1966a:91), casual speech cannot be obtained on tape, because when speakers know they are being recorded – as they know in both the materials – it automatically increases the formality of the situation (see above, Chapter 2.3). The stylistic designs of the two language course materials differ in many respects. In the following, the styles of the two materials will be compared in terms of the theories of stylistic variation reported above.

According to Finegan and Biber's (1994) theory (see above, Chapter 2.3.2), the language course materials are situated differently on the continuum of **involved versus informational production**. First, they differ in the **degree of shared context**. In *Coffee Break*, both the interviewer and the interviewees are Sydneysiders and therefore they have a lot of shared context. The workmates in coffee break chat have even more shared context as they share the same workplace and have gotten to know each other during many previous coffee breaks. In *Down Under*, the interviewees have less shared context with the foreign interviewer and many things have to be explained; also the Australian pronunciation can be seen as part of the context which is not always shared. The interviewees have even less shared context with the Finnish radio audience, who are physically, temporally and culturally distant, and Korhonen continually makes questions which underline the fact; the interviewees are in the role of experts and have to explain Australian words and phrases and the Australian way of thinking.

Second, the **purpose of communication** is different in the two materials. The interviews of *Down Under* are public interviews made for the Finnish Radio and from the beginning intended for broadcasting. Their purpose appears mostly informational: giving information to the Finnish radio audience about Australia

and the Australian way of life. *Coffee Break* interviews appear fairly informal ones, made only to get background information about the speakers taking part in the *Coffee Break* chat. In the coffee break chat part of *Coffee Break*, Economou has chosen a naturally occurring conversation type tied to the daily routines of the workplace and avoids interfering with the genre as best she can: by giving as little information as possible about the purpose of the recording and about herself; by not being present at the time of recording; by going on with the recordings during every coffee break of the week so that the workers should get used to the recording (Economou 1985a:2–3). The usual purpose of break time chats is involved rather than informational: expressing attitudes shared by all participants (Economou 1985a:4–5), creating a common concensus and a feeling of belonging to the group. Subjectively speaking, also the interview style of Economou is more emotionally involved than that of Korhonen in *Down Under*; for example, in the interview with Bronwyn (see Appendix 2), she comments on Bronwyn's having ten children, using a very emotional intonation: "Really! I can't believe it! You're so young!". In his role as a radio interviewer, Korhonen uses a more matter-of-fact, less varying intonation.

The audience perceived by the speakers at the moment of recording is different in the two language course materials and there are several possibilities to interpret the situations from the point of view of **audience design** theory. First of all, there are the interviewers who function as addressees and whose social characteristics and styles of interviewing are different. The interviews of *Down Under* are made by Seppo Korhonen, who is an experienced radio interviewer but has some remains of a Finnish accent. His speech rate is quite slow and, as the accomodation theory would predict, the speech rate of the interviewees matches his. Possibly the slow speech rate is intentional, in order to make the language easier for the average Finnish radio listener to grasp. The interviews of *Coffee Break* are made by Dorothy Economou, who is a teacher of English and an original Sydneysider (Economou 1985a:3; 1985b:vi). Her speech rate and that of the interviewees is quite fast, both the interviewer and the interviewees speak on top of each other, laugh and make false starts. In Labov's (1972) theory, at least the laughter, which is also present in the coffee break chat, could be considered a channel cue signalling casual style – if only it occurred outside the interview proper (see above, Chapter 2.3.1).

From the point of view of audience design theory, other participants in the situations in *Coffee Break* include the workmates, who function as addressees and auditors in the coffee break chat part of *Coffee Break*. From the

point of view of Labov's theory, this contributes to making the style more informal, since Labov uses group discussions with peers to elicit informal speech style (cf. above, Chapter 2.3.1).

Again from the point of view of audience design theory, in *Down Under*, the Finnish radio audience is functioning as either an overhearer or an auditor, sometimes even as an addressee. Korhonen does not hide the fact that he is making the interviews for the Finnish Radio. Sometimes he may ask the interviewee towards the end of the interview: "What is your message to the Finnish Radio audience?". It is impossible to say how much the interviewees are aware of the radio audience at each point of the interview but, as reported above in Chapter 2.3.3, in previous study of audience design, extensive accomodation may be observed in the mass media (Bell 1984:171-172,192).

Summing up, in *Down Under*, both the addressee (the interviewer) and the overhearers (radio audience) are Finnish, whereas in *Coffee Break*, all the participants in the situation are Australian. Because of the use of group discussion and channel cues, the style of *Coffee Break* appears more informal than the style of *Down Under*. In Finegan & Biber's terms, the register of *Coffee Break* appears more involved than the register of *Down Under*, on the basis of both the criterion of degree of shared context and the criterion of purpose of communication.

3.3.2 Social and Regional Variables in *Down Under* and *Coffee Break*

In the following, *Down Under* and *Coffee Break* will be compared in terms of regional factors and social factors, which include gender, socioeconomic background, and age.

The speakers of *Down Under* come from various parts of Australia and many of them live outside the capital cities, whereas all the speakers of *Coffee Break* live in Sydney. The greater regional variety of speakers in *Down Under* is partly explained by the greater amount of speakers: in *Down Under*, there are nineteen interviewees, whereas in *Coffee Break*, there are only four speakers in addition to the interviewer.

The speakers in *Coffee Break* all work in the same hospital in Sydney, but the occupations of the interviewees in *Down Under* vary: there is both a miner and a mayor, both a farmer and a doctor. The interviewees in *Down Under* are mostly middle-aged men; one or two of them are older than that and

four out of nineteen are women. The speakers in *Coffee Break* are two middle-aged women, one younger woman and a young man.

In the following, a more thorough comparison between the speakers of the two materials will be made.

3.3.3 Speakers under Study

In order to compare the diphthongal variation of the two materials, five speakers are selected from *Down Under* and three speakers from *Coffee Break* because there only are four speakers in *Coffee Break* and one of them is a too recent immigrant. In the selection of speakers, the following criteria are observed: the sample of speakers of each course should include both male and female speakers; speakers from different levels of social hierarchy should be included and, if possible, both a male and a female speaker from each level; the people in question should be interviewed long enough so that all the diphthong tokens needed can be found in the speech of each speaker. As mentioned above, the scope of this study includes only the ethnic majority, excluding also recent immigrants for reasons stated above.

For *Coffee Break*, Pauline, Bronwyn, and Gary are chosen (below, they may also be referred to by their initials, P, B, and G). Pat is excluded because, having come to Australia only after three years of Primary School in England, she is a too recent immigrant. *Coffee Break* gives extensive background information on the speakers. Both Pauline and Bronwyn were born in 1949. *Pauline* has worked in the office for over ten years and, having started as a clerical assistant, she is now in a supervisory position. Her education includes Higher School Certificate plus a number of part-time courses since school. Her father is a hospital maintenance manager and her mother a doctor's secretary. (Economou 1985b:3,23,63.)

Bronwyn and Gary are Pauline's subordinates. Before coming to the office a few months ago, *Bronwyn* had taken the Higher School Certificate plus a four-year nurse training and worked as a nurse for 15 years. Her father is a foreman fitter, her mother a matron, and her husband is a security manager of a large public service institution. (Economou 1985b:3,83.)

Gary, born in 1962, is the only male speaker in *Coffee Break*. After school he has been working as an office boy, in a bank, and for over four years in advertising and promotions. In the present job as a clerk he has been for a few weeks. His father is a tennis instructor and his mother a housewife. Gary's

education comprises high school up to School Certificate level. (Economou 1985b:43,83.) He gives shorter answers and overall speaks less than the others.

For *Down under*, the speakers studied are Leslie Oldfield, Heath Sandercock, Gillian and Meikle Meecham, and Lew Lethlein. In Figure 8 below, the speakers chosen both from *Coffee break* and from *Down under* are classified according to the Congalton scale of occupational prestige (see Table 9, Chapter 2.1.1). *Leslie Oldfield* (below also LO) is the mayor of Alice Springs. She has come to Australia at the age of six from England. In the language course material, little is told about her education and earlier work but from the program it is clear that for an Australian woman, she is in an exceptionally high position. Because only part of the Congalton scale is available, the job titles of all the speakers are not included, e.g. the title of mayor cannot be found. Probably mayor would lie in the professional column, definitely above school principal (2.47). Leslie Oldfield's classification is thus indicated by a vertical line between
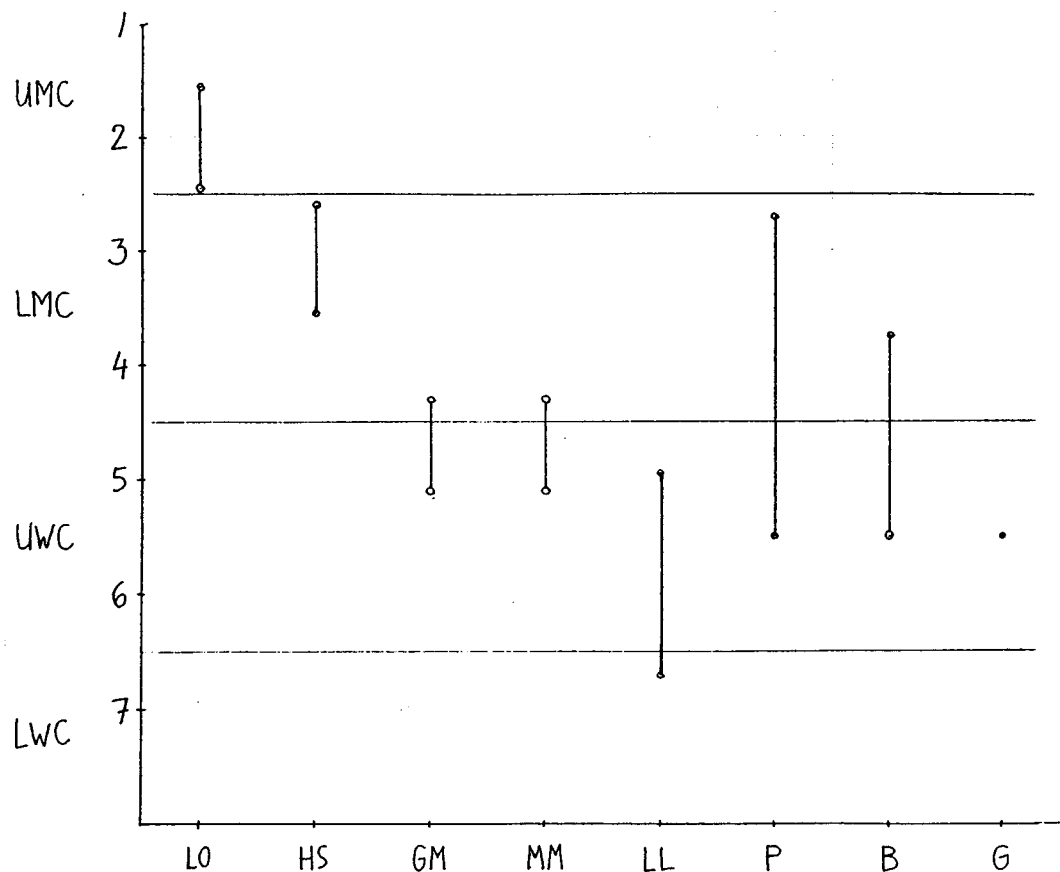

Figure 8. Occupational status of the speakers studied measured on the Congalton scale.

the lowest possible point and the highest possible point of classification (the highest point in the scale, which is 1.57 doctor).

Heath Sandercock (or HS) is a mining engineer working as an Area Mining Superintendent at the Peddington gold mine. He is in charge of the biggest surface gold mine and treatment plant in the eastern Goldfields. He is definitely not a works manager (3.61), but something between departmental manager, general (3.55), departmental manager, large business (2.97), and company manager, large business (2.62).

Gillian and *Meikle Meecham* (GM and MM) are sheep farmers renting a large farm from the Government with own capital, animals, and machinery, employing several people and participating in the work themselves as well – in other words, something between 4.30 and 5.11 on the Congalton Scale. In addition to the farm, they also run a tourist attraction where people can come fishing. Because Gillian Meecham and Meikle Meecham share the same job and thus also the same social position, the social differences in their diphthong pronunciations are limited to the gender difference and to the fact that Meikle Meecham's family are farmers for several generations whereas Gillian Meecham originally came from the city "twenty-odd years ago" – a fact that she seems to emphasize. Interviewed together, they also share the setting. On the basis of the language course material, nothing is known about Gillian Meecham's education, occupation, or social background before her marriage, except that she grew up in the city.

The lowest-ranked occupation you can find in *Down Under* is that of a miner. *Lew Lethlein* (LL) worked as a miner from 1934 or '36 to 1976. He describes the life of a miner in the early days as "next door to slavery". Probably he then retired and now his main interest is prospecting. He has also got a mine of his own at which he works. In the Congalton scale, Lew Lethlein is classified as a miner (6.70). If his own mine is a financial enterprice and not just a hobby, he could also be classified as the owner of a very small business (4.97).

As was mentioned above, there are altogether only four women interviewed in *Down Under*. One of the women, the director of an aboriginal association, belonging to an ethnic minority is defined out of the scope of this study. Another, a teacher of the School of the Air, is interviewed for too short a time to be included in this study.

Some of the speakers chosen can be classified according to several job titles – e.g. Bronwyn of *Coffee Break*, who is a trained nurse (3.73) and has worked as such for fifteen years but who now acts as a clerk in a government

office (5.52), the Medical Records Department of a large public hospital. Her classification is indicated by a vertical line between the two possible points. Pauline is not an ordinary clerk anymore because she is in a supervisory position. She is probably not yet as high as a departmental head in Government service (2.71), but somewhere between the two extremes. Gary is classified as a Government office clerk. It is difficult to know what kind of a job he had in advertising and promotions and in the bank – and how to classify them. On the basis of Figure 8, Leslie Oldfield is upper middle class, Heath Sandercock is clearly lower middle class as probably is also Pauline. Gary is upper working class and Lew Lethlein lower working class, if he is classified as a miner. Bronwyn and the Meechams are either lower middle class or upper working class.

In the present study, age and region are more random than social class. The exact age at the moment of the interview of Gary (21), Bronwyn (34), Pauline (34), and Lew Lethlein (76) is known. It is also known that Leslie Oldfield is more than 39 at the time, because at a certain point of time she was 21 and this was before she came to Alice Springs "18 years ago". Judging from her voice and appearance, she could be perhaps 45. Gillian Meecham could be about the same age, because she came "from the city up to the bush twenty-odd years ago" when they got married and because their youngest daughter only recently left for boarding school after six or seven years of School of the Air and their eldest son just finished school. Meikle Meecham might possibly be around the same age. The least is known about the age of Heath Sandercock. On the basis of the picture in the accompanying booklet and of his responsible position in which he has been for two and a half years before the moment of the interview, his age could be estimated to be between 35 and 45. Most of the interviewees are thus born in the 1940's but Gary is younger and Lew Lethlein much older. On the basis of his year of birth, Gary would belong in Figure 7 above to the upper working class teenager group whereas the other speakers in the data would belong to the adult group, except Lew Lethlein, who is slightly older than the oldest speakers in Horvath's study.

Pauline and Gary have lived all of their lives in Sydney. Also Bronwyn has lived in Sydney for a long time but as a child, she also lived in large towns in the western parts of New South Wales. Heath Sandercock originally comes from Broken Hill, which is a mining town in New South Wales, actually nearer to Adelaide than to Sydney. Now he lives in Kalgoorlie in Western Australia. Lew Lethlein's origins are not known from the programme; it is only known he has lived in Kalgoorlie, Western Australia, at least from 1935 when he was 23.

Meikle and Gillian Meecham live on the Western Australia coast, fifty miles from Carnarvon. They both come from Western Australia: Gillian comes from "the city", which might mean Perth or possibly Carnarvon. As a young couple, they both lived on Meikle's mother's family property 200 miles inland from Carnarvon, probably the same place where Meikle spent his childhood.

Leslie Oldfield moved with her parents from Britain to Australia when she was six and grew up in Melbourne at least till the age of 21. She has now lived in Alice Springs for 18 years and considers herself a Territorian.

The speakers in the data thus come from very different parts of Australia and there are no other Sydney speakers in the data than those in *Coffee Break*.

3.4 The Analysis Procedures

3.4.1 Selection of Vowels

To study the picture of Australian English closing diphthongs conveyed by the two language courses, six diphthongs will be concentrated on, as stated above in Chapter 1: /ɪi/, /ɛɪ/, /aɪ/, /ʊu/, /ou/, and /aʊ/. Three tokens of each diphthong are chosen for measurement in the speech of each of the eight speakers – thus altogether 6 * 3 * 8 = 144 tokens. The diphthong quality is analyzed both auditorily by the present author and acoustically by measuring the frequencies of the two lowest formants. In addition, all the occurences of the diphthong /ɛɪ/ in a stressed syllable in the speech of each speaker are evaluated auditorily for their quality in order to see if the smaller sample measured both auditorily and acoustically is representative. For the auditory study, the diphthong /ɛɪ/ was chosen, because of its frequency of occurence and its position as a marker (cf. above, Chapter 2.3.5).

In the choice of the 144 diphthongs for auditory and acoustic measurement, several criteria are applied. To avoid the effects of reduction, only the vowels of stressed syllables are studied. Redundant words are avoided for the same reason. Thus, if a word is frequently repeated, only the first or in some cases the emphatic second token is chosen for measurement. Proper names and foreign words are avoided whenever possible, especially if they have very unusual diphthong qualities.

Because of the method used, an additional criterion for the choice of diphthong tokens is the ease of measurement and sufficient correspondence between the results of the auditory and acoustic measurements. These criteria and their application will be discussed more thoroughly below, in Chapter 5.

The place of articulation of the consonantal frame of the diphthongs is kept constant in order to control the transitional effects of the consonants on the diphthong formants (Green 1959; Suomi 1990:153). The alveolar place of articulation is chosen because of the great number of alveolar consonants in English (/t/, /d/, /s/, /z/, /n/, /ɹ/, /l/, plus the tap [ɾ]) and because of their high frequency of occurence. The cases when the alveolar environment was not possible will be discussed below, in Chapter 4.2.1.

All the alveolar consonants are not equally good for the frame. Obstruents, plosives above all, are preferred because of their short transitions and relative ease of segmentation. Nasals do not have long transitions either, but

they may spread nasality to the diphthongs, especially in postvocalic position, blurring the formant structure of the vowel and adding nasal formants or antiformants (Kyttä and Hurme 1982:208–209; Suomi 1990:96–97). In the literature, nasality is mentioned more often in connection with certain vowels of Australian English, notably /æ/ (Mitchell and Delbridge 1965:61,80–81; Wells 1982:604) and /aʊ/ (Mitchell and Delbridge 1965:84–85; Turner 1966:103). Postvocalic /n/ is mentioned to raise the quality of /æ/ in many speakers of Australian English (Oasa 1989:286). Because of the above reasons, especially postvocalic nasals are avoided whenever possible. For the discussion of cases when this was not possible, see below Chapter 4.2.1.

For the English /ɹ/, one of the acoustic indicators is the lowering of F3, which usually also affects F2. Even though /ɹ/ is quite frequent prevocalically, it is not preferred in this study because of its long transition effects. Postvocalically it is less frequent, and no diphthongs with postvocalic /ɹ/ appear in the sample.

The English /l/ has a dark variant postvocalically, and therefore postvocalic /l/ is totally excluded from the consonant frames of the diphthongs because of its attested strong effects on vowel quality in Australian English (Cochrane 1959:81, Clark 1989:208–210). Wells (1982:603) has got the impression that the Australian English /l/ is pharyngealized rather than velarized and that this is true in all environments, and calls for further study. Trudgill and Hannah (1982) agree that the Australian English /l/ is often darker than in RP. Their example is from a prevocalic environment: <leaf> [ɫɜɪf] (Trudgill and Hannah 1982:18.); note the effect the lateral has on the following vowel. Nevertheless, Turner (1966:105) and Clark (1989:213) claim that the distribution of clear and dark /l/ in Australian English is similar to that of the RP where dark /l/ is found only in postvocalic environment. According to Cochrane (1989:181,185), prevocalic dark /l/ exists in many Australian English speakers but it cannot be generalized. From the point of view of the adjacent vowel, the possible pharyngealization mentioned by Wells would affect the vowel quality even more than velarization. Because of the possibility of dark /l/ also prevocalically, postlateral vowels are avoided whenever possible. For the discussion of the cases when this was not possible, see below Chapter 4.2.1.

3.4.2 Acoustic Measurement

In the present study, the acoustic measurement of the diphthongs consists of determining the frequencies of the two lowest formants at five points: starting point, end point and three points evenly distributed in between. The change in vowel quality in each diphthong can then be represented as an arrow connecting the five points in the F1 * F2 vowel space. Time is thus normalized in a way, (even though duration might still affect the diphthong quality). Finally, average frequencies are counted for the three tokens of each speaker's diphthongs at each of the five points of measurement; thus the average quality in the present data of each speaker's /ɪi/, /ɛɪ/, /aɪ/, /ʊu/, /oʊ/, and /aʊ/ is obtained.

The method used in the present study is measurement of formant frequencies despite the fact that other methods, e.g. total spectrum shape (cf. Suomi 1987) may correlate far better with the perceived vowel quality. Formant frequences are used here because with them, diphthong movements can be illustratively demonstrated in the vowel space and the more and less broad qualities of the same diphthong form a continuum. It should be remembered, however, that the position of the lowest two formants does not correlate perfectly with the vowel quality. To diminish the deficencies caused by the method, also auditory estimation and transcription is used in the present study.

The measuring of the vowels of the present study was done by the present author in the Phonetics Laboratory at the University of Jyväskylä during spring 1992 and the procedure was as follows: the speech signal was transformed into digital form using a MacRecorder and a Macintosh computer. Using a SoundEdit program, the vowels under study were cut out of the rest of the speech signal in a frame of one to three words and saved on diskettes in soundwave form. The vowels were analyzed using the Signalyze program (version 2.0) in a Macintosh computer.

In segmentation, the point of greatest acoustic change was sought with the help of a duplex oscillogram and wide-band spectrograms (125 to 300 Hz). Where the diphthong is preceded by an aspirated plosive, aspiration was regarded as part of the plosive and diphthong measurement was started at the start of phonation (FØ) (see Figure 9 below) because also F1 begins at that point. Where acoustic correlates of several sounds overlap in the speech signal (see Figure 10 below), the segmentation was done on the basis of auditory

perception, making use of the feature of Signalyze that parts of the speech signal can be activated and listened to in isolation.

After segmentation, the duration of each diphthong was measured and divided by four to get the five different points in time for the measurement of the formant frequencies. The frequencies of F1 and F2 were estimated using narrow-band spectra (40 to 125 Hz) of each point of measurement (see Figure 11 below) and by comparing them with the general picture given by the wide-band spectrograms (125 to 300 Hz, according to speaker characteristics). The bandwidth and darkness of the spectrograms was varied according to the pitch height and voice quality of each speaker and of the word in question. Needless to say, also auditory perception is always present in the measurement of formant frequencies (cf. Suomi 1987:38–39).

In the present study, normalization between speakers is carried out through the use of four vocalic reference points: the average F1 and F2 values of /ɪ/, /æ/, /ɔ:/ and /a:/ (as in *sit*, *sat*, *sought* and *dart*, respectively) are measured for each speaker. This four-point vowel frame also helps relate the diphthong qualities of each speaker to the rest of his or her vowel system.

The four-point vowel frame used in the present study is designed to include both back and front, open and close vowels: according to previous study, /ɪ/ is the closest front vowel in Australian English (highest F2, lowest F1 values) after /ɪi/ is included in the diphthongs (Bernard 1970:115; see Figure 1). /ɔ:/ is included in the vowel frame of the present study because according to previous study, it has stayed a pure back vowel in Australian English while other long back vowels have shifted forward (Wells 1982:599; see above, Chapter 1.1.2). It is the vowel with the lowest F2 values in Australian English (Bernard 1970:115; Burgess 1968:136; Figures 1 and 2 above) and, according to Bernard (1970), its F1 value is nearly as low as that of /ʊ/. /ʊ/ is according to Bernard (1970:115) not as much fronted as /ʊu/, but it was not included in the vowel frame of the present study because of its rarity of occurence.

The third vowel included in the four-point vowel frame of the present study is /a:/. According to previous study, /a:/ is an open vowel; together with /ʌ/, it is the vowel with the highest F1 values. It is not a back vowel in Australian English, but there are not any equally open vowels further back. (Bernard 1970:115; Burgess 1968:136; see Figures 1 and 2 above.) The frontness of /a:/ varies sociolinguistically (Table 3 and Cochrane 1959:80) but also regionally (Bradley 1989:265).
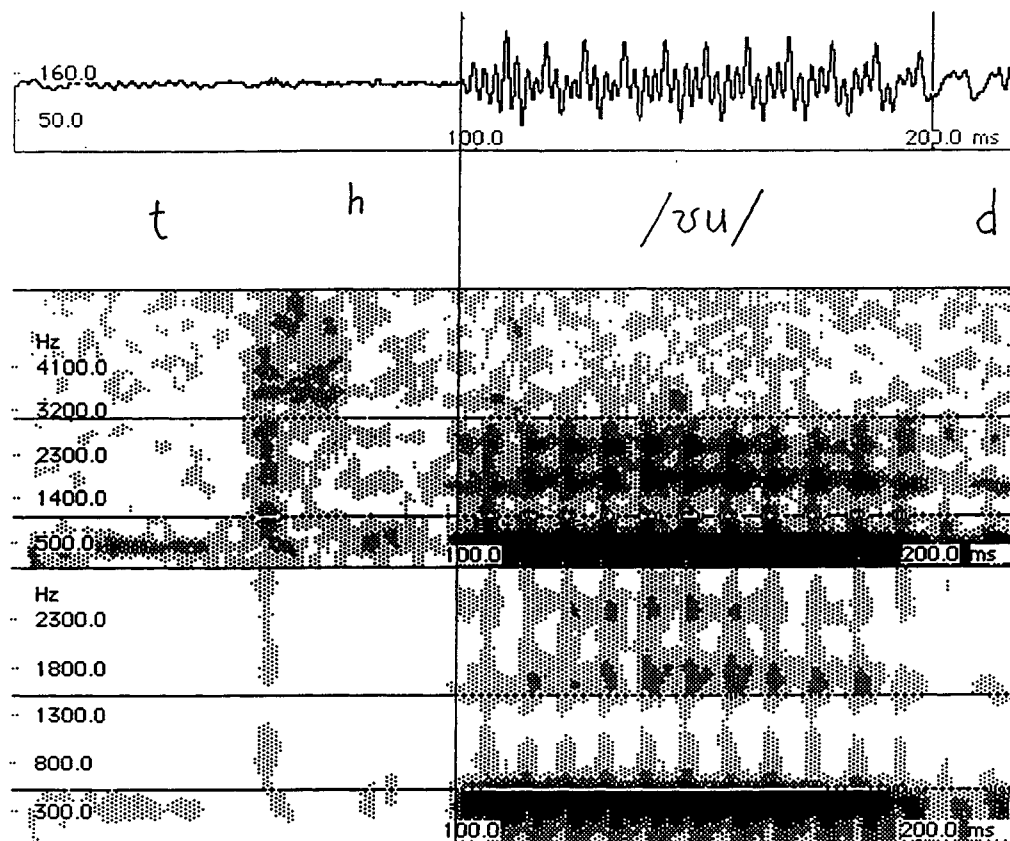
Figure 9. Acoustic speechwave and wide-band spectrograms used in the segmentation of the diphthong MM41 (*two d-*). The beginning of measurement at the start of FØ is marked with a vertical line.
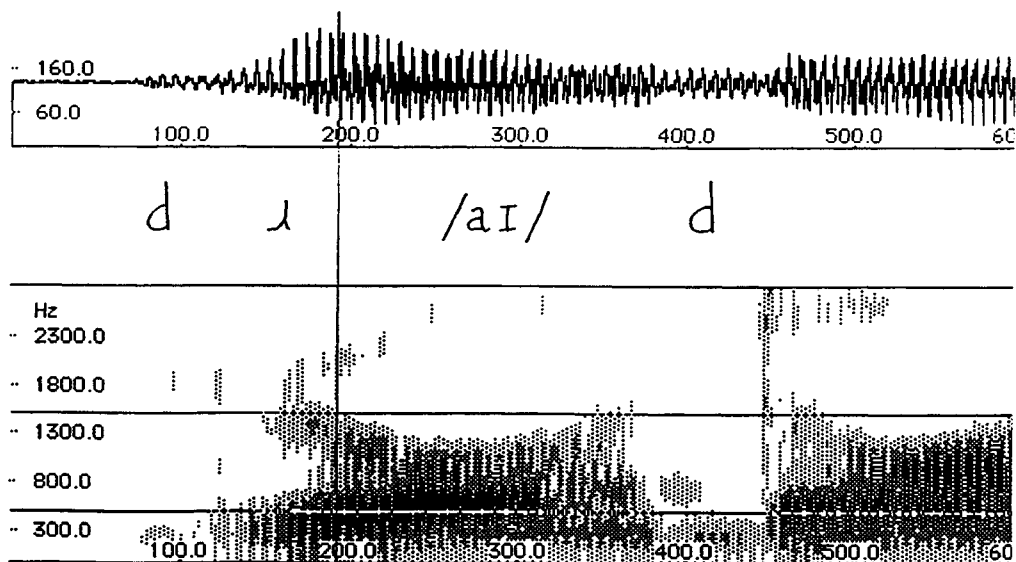
Figure 10. Acoustic speechwave and a wide-band spectrogram of the diphthong LL33 (*dry d-*). The beginning of measurement defined auditorily is marked in the picture with a vertical line.
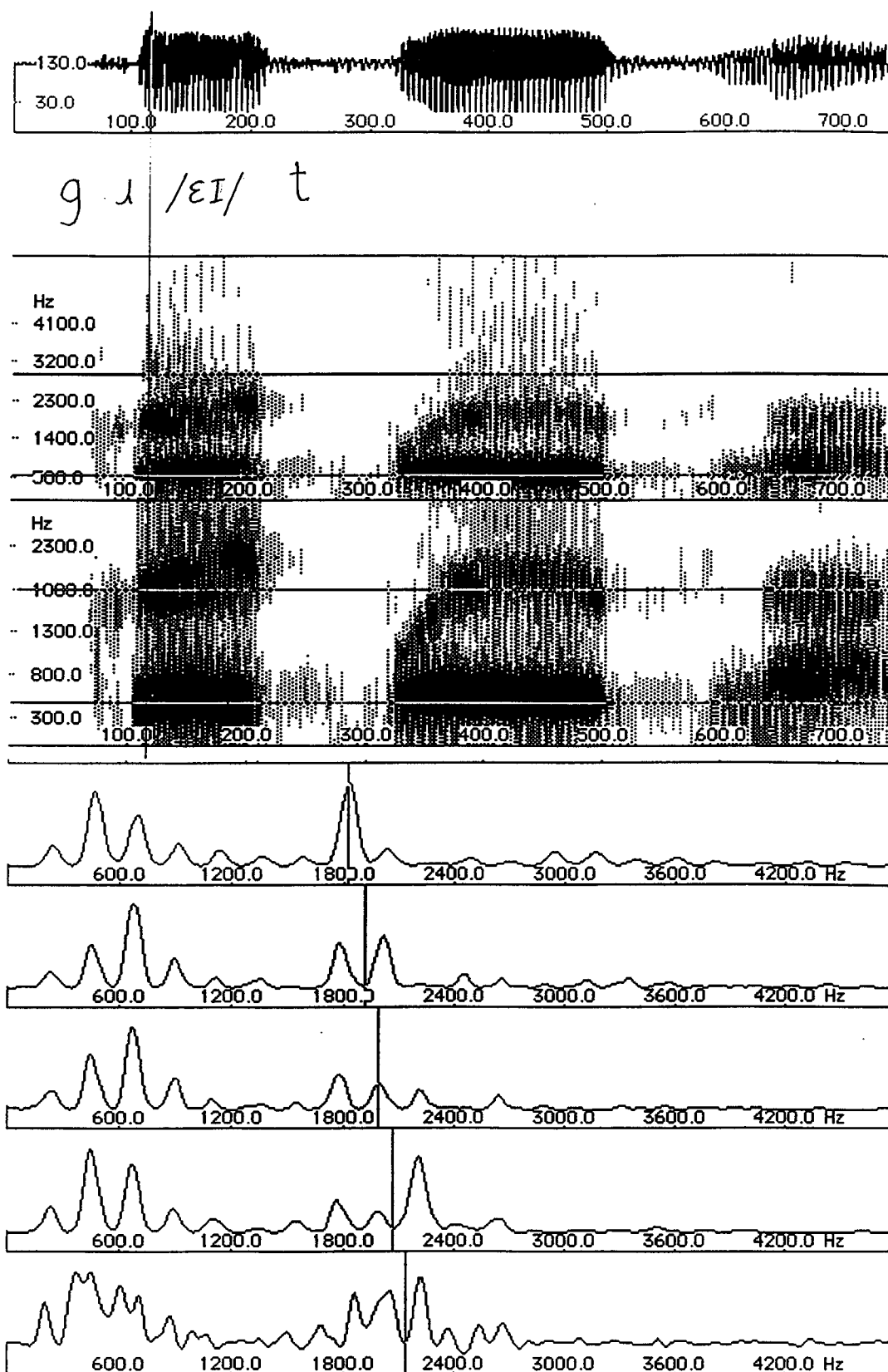
Figure 11. Acoustic speechwave, a wide-band pectrogram, and narrow-band spectra used in the measurement of the formant frequencies of the diphthong GM21 (*great*).

In the present study, the fourth vowel included in the four-point frame is /æ/, which, according to previous study, is the most open front vowel in Australian English. Its openness varies sociolinguistically (Bernard 1970:115; see above, Table 1 and Chapter 1.1.1) and regionally (Bradley 1989:265) and shows the degree of pancake vocalism of the speaker (Wells 1982:598). Since the sociolinguistic variation of the frame probably affects also the perception of the rest of the vowel qualities, it must be taken into account in the present study when comparing the diphthong qualities of the speakers.

For each of the reference vowels of the present study, the F1 and F2 values of at least three tokens in stressed syllable in alveolar environment were measured. The formant frequencies were measured at a point where the effect of the surrounding consonants is the least. In the case of a diphthongal realization like [oə] for /ɔ:/, [ɛa] for /a:/, or [ɛæ] for /æ/, an extremity of vowel quality was sought for: in the case of /a:/ and /æ/, the point of highest F1 value; in the case of /ɔ:/, the point where F2 is at its lowest; in the case of /ɪ/, the point of lowest F1 and highest F2. Reduced vowels and those deviations that can be given a clear reason were excluded.

If the three tokens measured were not sufficiently near each other on the formant chart, more tokens were included until an area of typical values could be located. If enough tokens were not found in alveolar environment, other emphatic environments were included on the condition that the environment did not affect the target value. For each speaker, the average F1 and F2 frequencies of the four reference vowel phonemes were counted to obtain the four-point vowel frame against which the diphthong qualities of the same speaker can be compared.

Figure 12 below presents the formant frequencies of the reference vowel tokens measured for Meikle Meecham. The frequencies of the tokens used for the reference averages are marked with a cross and the average vowel frequencies are connected with a solid line to form Meikle Meecham's reference vowel frame. The formant frequencies of the vowel tokens discarded either for the sake of reduction or for the effects of the consonantal environment on the vowel quality are presented with small circles.
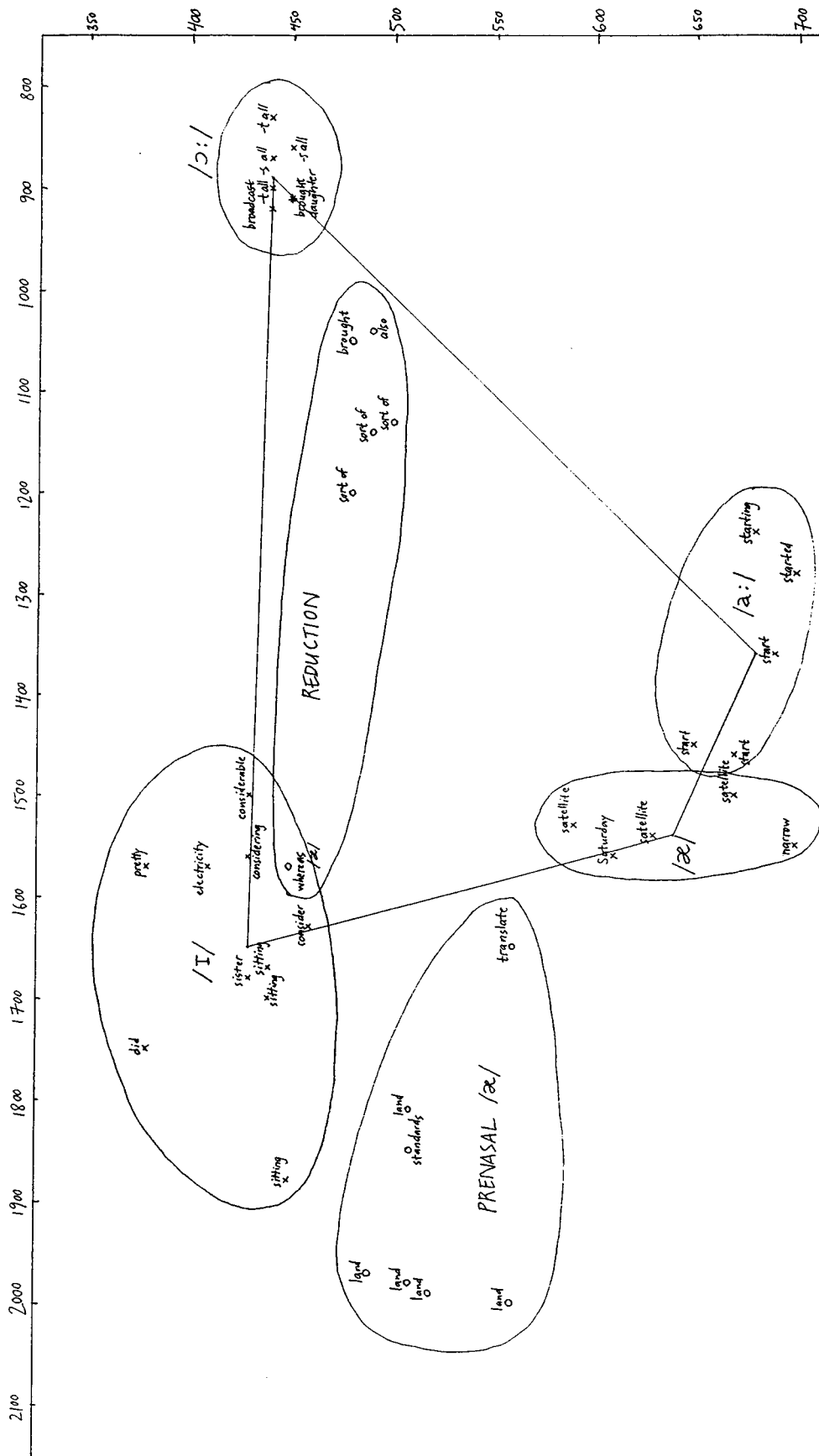
Figure 12. The frequencies of the lowest two formants of the vowel tokens measured for Meikle Meecham's vowel frame presented in F1 * F2 vowel space. The frequencies of the tokens used for the reference averages are marked with a cross, average frequencies connected with a solid line and discarded tokens presented with small circles.

3.4.3 Auditory Evaluation

In addition to the auditory and acoustic analysis of tokens of the six diphthongs in alveolar environment, all the stressed-syllable / ɛɪ / diphthongs are analyzed auditorily. The analysis consists of auditory evaluation and phonetic transcription of the vowel quality by the present author. The diphthong tokens are then classified according to the quality of their first element.

The phonetic transcription system used, unless otherwise specified, is the International Phonetic Alphabet of 1989. One must admit that hearing and transcribing phonetic qualities is necessarily subjective but what is essential for the present study is not the exact phonetic qualities but the differences between the speakers.

4 ANALYSIS OF THE PRESENT DATA

In the following, the results of the study will be presented, first the auditory analysis of stressed-syllable /ɛɪ/ diphthongs, then the auditory and acoustic analysis of /ɪi/, /ʊu/, /ɛɪ/, /ou/, /aɪ/, and /aʊ/. In Chapter 5, the results will be considered in the light of the theories of variation presented above in Chapter 2.

4.1 Auditory Analysis of the Diphthong /ɛɪ/ in Stressed Syllables

In Figures 13 and 14 below, the results of the auditory evaluation of /ɛɪ/ in stressed syllables are presented. The number of tokens in the speech of each speaker is indicated, reflecting the amount of speech available. As was indicated above, the interviews of *Down Under* last longer than those in *Coffee Break*. Leslie Oldfield and Meikle Meecham are interviewed the longest and Pauline and Bronwyn have five to seven times less tokens of stressed-syllable /ɛɪ/ in their speech. In Gary's speech there are only thirteen tokens because he gives very short answers to the interview questions.

4.1.1 Classification Criteria

In Figures 13 and 14, the /ɛɪ/ diphthongs are classified according to the quality of their first element. The more front and close qualities (the Cultivated end of the continuum, cf. Table 4 above) are situated to the left, the more open and back qualities (the Broad end) to the right. As can be seen from Table 4, the different qualities can be heard, transcribed and classified in many ways. No classification of the diphthongs into the traditional categories Broad, General, and Cultivated is attempted in the present study; the qualities given in Tables 4 and 5 are to be understood more as an indication of possible qualities along the continua.

In the most strict sense, the transcriptions by the present author can only be compared with each other; the same qualities may be transcribed slightly differently by other researchers. In the transcription of the present author, there are a few points clearly deviant from the International Phonetic Alphabet: the symbol <ʌ> indicates a quality different from the IPA and moreover similar to the Australian English /ʌ/, which is by no means a fully back vowel; rather, it has a central to front quality. The symbol <a> indicates in the present

%
100
50
0
LO
N=212
εɪ
æɪ
ʌɪ
1 2 3 4 5 6 7
HS
N=71
GM
N=69
MM
N=152
Pauline
N=30
LL
N=68
Bronwyn
N=35
Gary
N=13

Figure 13. The results for each speaker of the auditory analysis of the diphthong /ɛɪ/ in stressed syllables. Number of tokens for each speaker is indicated. The shadowed areas consist of certain items of lexical distribution considered below.

transcription a slightly more back quality than <ʌ>. The symbol <ɐ> represents a quality still more back and the fully back quality is transcribed <ɑ>. The transcriptions <ɛ> and <æ> are problematic, because /ɛ/ and /æ/ are undergoing change in Australian English at the moment. Each speaker's vowel system no doubt affects the perception of these qualities, as does the transcriber's mother tongue. The symbol <e> indicates a quality that is clearly as close as the second cardinal vowel. A raised vowel symbol, for example <ᶦ>, indicates an extrashort vowel, which in the present IPA notation is indicated by <ĭ>.

Because only the quality of the first element is taken into account in the classification of the stressed syllable /ɛɪ/, Column 2, <ɛɪ>, includes diphthong qualities such as [ɛɪ ɛɪ̞ ɛɪ̽ ɛI ɛᶦ ɛe ɛẹ ɛë̤ ɛë̆ ɛə ɛə ɛː]. Also the qualities surrounding [ɛ] are included: [ɛ̞ɪ ɛ̞ɪ̽ ɛ̞ɪ̞ ɛ̞ë̤ ɛ̞ɪ ɛ̈ɪ ɛ̈ɪ̞ ɛ̈ə].

The lengthening of the first element of the diphthong is not taken into account in the present classification (cf. Mitchell and Delbridge (1965) classification above in Table 4, where this is an important criterion). This is due to the fact that there are lengthened first elements with almost every starting point quality. Thus in Column 2 are included also qualities such as [ɛˑɪ ɛːɪ ɛˑɪ̽ ɛ̞ˑɪ ɛ̞ˑë̆].

In some cases, the lengthening of the first element is due to a certain lexical item. In other cases, lengthening occurs when two vowels have collapsed together so that segmentation is impossible: Ayers (Rock) /ɛɪəz/ [ɛːəz], saying /sɛɪ.ɪŋ/ [sɛːɪŋ]. In such cases, classification according to the starting point quality is practical. In other cases, lengthening does count. Pauline, for example, lengthens the first element in some very regular words (day [dɛːɪ], days [dɛ̈ːɪz]), which gives her speech a relaxed flavour in spite of the relatively front and close starting points. This flavour is lost in the present classification. Nasality (also used by Pauline: paid [pæ̃ᶦd]) is also lost, even though Mitchell and Delbridge (1965) associate it with Broadness.

Column 4, <æɪ>, includes anything from [æɪ] and [æˑɪ] to [æe æɪ̽ æɪ̽ æ̈ɪ æ̈ˑɪ] and [æ̈ə]. Column 6, <ʌɪ>, includes transcriptions like [ʌɪ ʌˑɪ ʌ̟ˑɪ ʌːɪ̽ ʌː ʌə ʌ̟ə ʌˑe ʌˑə ʌ̟ɪ ʌ̟e ʌ̟ˑɪ̽ ʌ̟ˑi ʌ̠ɪ ʌ̠ˑe ʌ̄ˑɪ̞] and anything in between.

Column 3 between <ɛɪ> and <æɪ> includes diphthongs beginning with curious centralized midway qualities between [ɛ] and [æ], transcribed [ɛ̞ɪ

ε̆:ɪ   ε̆ɪ   ε̆:   æ̆ɪ   æ̆ɪ̃   æ̆ɪ]. Also the ephemeral backed and centralized [ε̆ɪ ε̆·ɪ   ε̆·ə] are included in this Column.

Column 5 between <æɪ> and <ʌɪ> equally includes centralized midway vowel qualities: [æ̆ɪ   æ̆·ɪ   æ̈·ɪ   æ̈ɪ   A̤ɪ   A̤:ɪ]. The transcription <ɜɪ> is used very sparingly in the present study. It might be used for many of the centralized vowels like [ε̈ɪ   ε̤ɪ   æ̤ɪ] and [A̤ɪ]. In the present study, it is interpreted as not far removed from [A̤ɪ] and the few cases are thus included in Column 5.

Column 1 to the left of <εɪ> includes diphthongs with starting points closer than [ε]: [eɪ] and [eə]. Column 7 inludes starting point qualities further back than the transcription <ʌ>: [aɪ   a·ɪ   ɑᴵ].

4.1.2 Environmental Effects and Lexical Distribution

In Figure 13, the distribution of the different qualities of /εɪ/ is presented in percentage out of the total number of /εɪ/ in stressed syllables in the speech of each speaker. The eight small figures are organized on the principle that female speakers are in the left-hand column, male speakers in the right-hand one, the five speakers from *Down Under* on top, the three of *Coffee Break* at the bottom and, inside the material of each resource, speakers of higher social standing above those of lower social status.

At the first glance, the correlation with the gender difference is obvious: the most frequentlu used quality among female speakers is [εɪ], except for Bronwyn, [æɪ]; among men, the highest Column is 5 (Meikle Meecham and Gary) or 6 (Heath Sandercock and Lew Lethlein). To get a more thorough view, the most obvious sources of bias should be excluded. There are items of possible lexical distribution in the data; for example, out of the 83 tokens of Leslie Oldfield's second Column, 40 consist of occurences of the word *they*. Out of the total of 93 occurences of the word *they* in the speech of the eight speakers, 73 per cent are in Column 2. Other possible items of lexical distribution include *anyway*, *always*, and *away*: all the eight occurences of the words *anyway* and *always* in the data are in Columns 1 and 2, whereas the six occurences of the word *away* are in Columns 5 and 6.

In Figure 13, the shadowed areas consist of occurences of the words *they*, *anyway*, *always*, *away*, and of the occurences of the related items *way* and *highway*. Even though it is hard to draw line to lexical distribution, these items help to explain some inconsistencies of the pattern: Gillian Meecham's and Lew
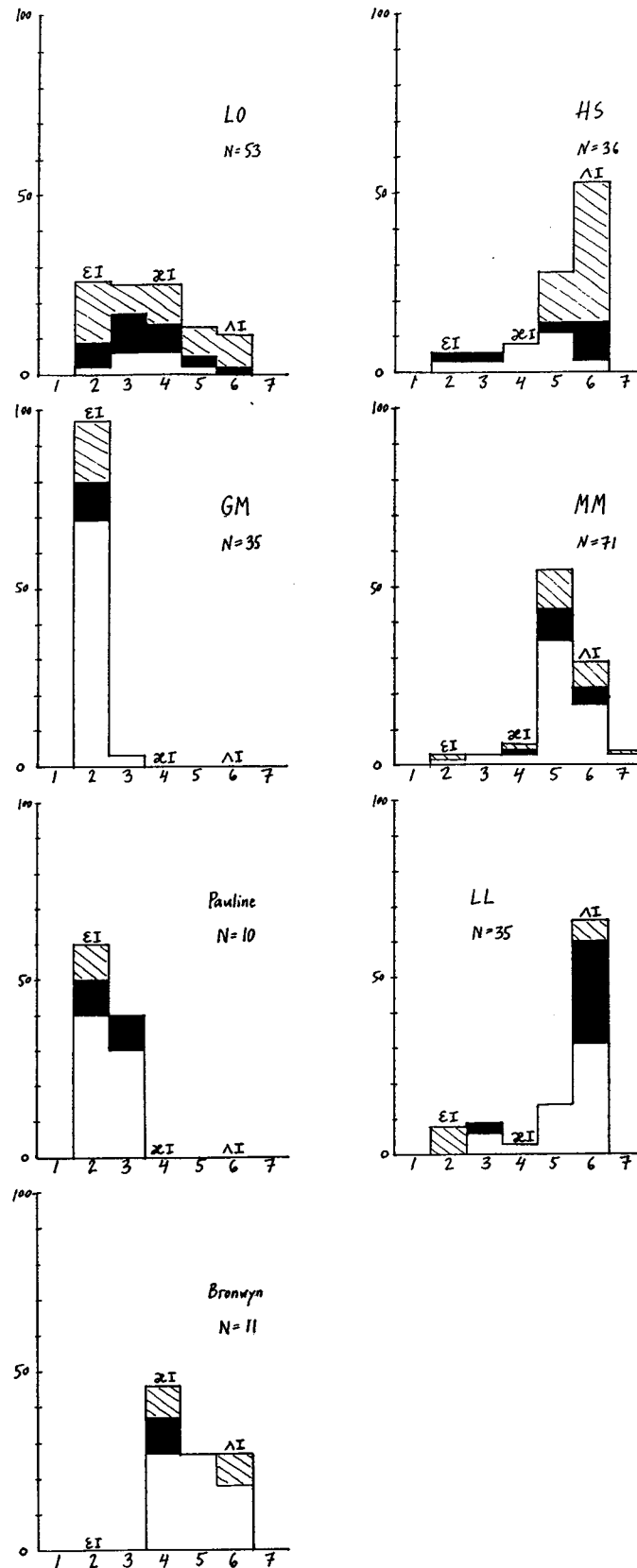
Figure 14. Auditory analysis of /ɛɪ/ in the environment of a preceding alveolar. Number of tokens in this environment is indicated for each speaker. The results of Gary are not presented because of lack of sufficient data. The shadowed areas represent qualities of /ɛɪ/ after /ɹ/; black areas represent /ɛɪ/ after /l/.

Lethlein's <eɪ> Columns consist entirely of the occurences of the words *anyway* and *always*; the odd <ɛɪ> Columns of Bronwyn and Gary and the shadowed area of Lew Lethlein's <ɛɪ> Column include no other lexical items than *they*, *always*, and *way*.

To see whether the smaller sample of /ɛɪ/ in alveolar environment analyzed both acoustically and auditorily further below is representative, the distribution of all the qualities of /ɛɪ/ in the environment of a preceding alveolar consonant is presented in Figure 14 above. The number of tokens in the speech of each speaker is indicated. The results of Gary are not presented because he only has three tokens in this environment; their qualities are those of Columns 4 and 5 and they all occur in the environment of a preceding /ɹ/. The environment of a preceding /ɹ/ and a preceding /l/ are marked in Figure 14 because of their possible effects on the vowel quality (see above, Chapter 4.2). Qualities of /ɛɪ/ after /ɹ/ are represented with shadowing and /ɛɪ/ after /l/ with black colour.

On the basis of Figure 14, preceding /ɹ/ or /l/ cannot be said to correlate with the quality of /ɛɪ/ in the speech of every speaker in the present data. Nevertheless, a preceding /ɹ/ can be said to correlate with vowel quality in the speech of Heath Sandercock: all of his tokens after /ɹ/ are found in Columns 6 and 5. In Lew Lethlein's speech, a preceding /l/ seems to have strong effect on vowel quality: all tokens but one of /ɛɪ/ after /l/ are found in Column 6 and the explanation for the odd one out could be its being slightly less emphatic than the other tokens in the data. Also in Heath Sandercock's speech, most of the tokens of /ɛɪ/ after /l/ are found in Column 6.

4.1.3 Variation in Stressed-Syllable /ɛɪ/

If the qualities of /ɛɪ/ in Figure 13 are numbered 1 to 7 and if they are considered as a continuum, average qualities can be counted for each speaker in the present data. Figure 15 below presents the averages of the quality of /ɛɪ/ in stressed syllables excluding the cases of possible lexical distribution discussed above.

The average /ɛɪ/ quality of each language course material can be counted in two ways: the average of all the /ɛɪ/ tokens or the average of all the speakers' averages. The results for the two materials are not far removed whichever way you count them: the average for all the /ɛɪ/ tokens of *Coffee Break* (possible items of lexical distribution excluded) is 4.0, for *Down Under*,
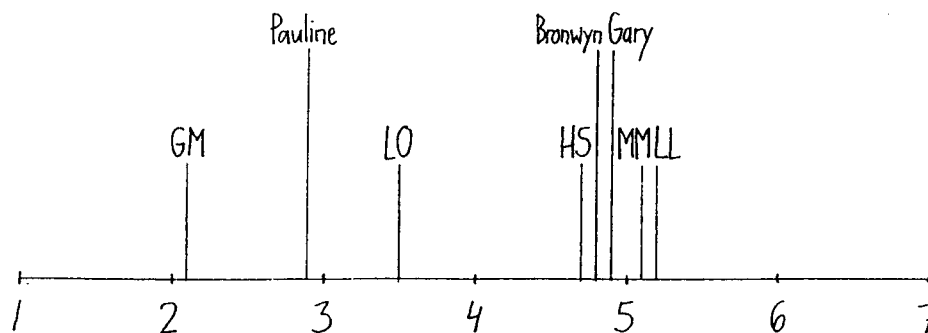
Figure 15. The average quality for each speaker of /ɛɪ/ in stressed syllable excluding the cases of lexical distribution indicated in Figure 13.

4.1. The average for all the *Coffee Break* speakers' averages is 4.2, for *Down Under*, 4.1. According to Figure 15, the variation between individual speakers is larger in *Down Under* than in *Coffee Break*: the average /ɛɪ/ of the most Cultivated speaker of *Down Under*, Gillian Meecham, is more Cultivated than the average /ɛɪ/ of the most Cultivated speaker of *Coffee Break*, Pauline, and the average of the broadest speaker of *Down Under*, Lew Lethlein, is broader than the average of the broadest speaker of *Coffee Break*, Gary.

When averages for the two materials are counted separately for the two genders, there are larger differences between the materials than in the averages for all speakers. The averages of the men's average qualities are not far removed – 4.9 for *Coffee Break* (Gary alone) and 5.0 for *Down Under* – but in the averages of women's average qualities, there is a wide difference between the two resources: 3.9 for *Coffee Break* and 2.8 for *Down Under*. This means that the gender difference in diphthong quality is larger in *Down Under* than in *Coffee Break*.

When individual speakers of each gender are considered and when the two language course materials are considered separately, women in each language course material are situated to the left of men. Also in individual speakers, the gender variation is very clear in *Down Under*: the differences among the male speakers are smaller than the difference between the least broad male speaker, Heath Sandercock, and the broadest female speaker, Leslie Oldfield. In *Coffee Break*, on the other hand, Bronwyn and Gary have almost the same average /ɛɪ/ quality and the difference between the two female speakers is much larger than the gender difference.

In the present data for *Down Under*, the gender variation is underlined by the fact that there is a very wide difference between the /ɛɪ/ diphthongs of Gillian and Meikle Meecham, who run their sheep station together: Gillian's average /ɛɪ/ quality is the least broad in the present data for both materials, Meikle's average /ɛɪ/ quality is the second broadest.

4.2 Acoustic and Auditory Analysis of /ɪi/, /ɛɪ/, /aɪ/, /ʊu/, /oʊ/, and /aʊ/

In Figures 16 and 17 below, the results of the acoustic measurement of /ɪi/, /ɛɪ/, /aɪ/, /ʊu/, /oʊ/, and /aʊ/ in alveolar environment are presented in the four-vowel frame of /ɪ/, /æ/, /aː/, and /ɔː/ for each of the eight speakers under study. The duration of each diphthong token is given in Appendix 3.

The object of the present study is vowel quality and not duration. Nevertheless, duration and vowel quality do interact. Diphthongs with longer durations often have broader quality, partly because they are emphatic and their quality is clearer. It is not out of the question, however, that durations may also vary sociolinguistically along with broadness (Mitchell and Delbridge 1965: 34-35, 83). Other factors correlating with durations of the diphthongs include following consonantal environment and speech rate. In the present study, durations are usually referred to as a means of defining the amount of emphasis on a given diphthong token in relation to the other diphthong tokens by the same speaker. The possible correlation between duration and broadness would be the subject of a further study.

In the Appendix 3, also the environment of each diphthong is presented, including a phonetic description of the immediate consonantal environment. In reading the results of the measurements of formant frequencies presented in Figures 16 and 17, transition effects of the surrounding consonants should be taken into account; they are the greatest at the first and last points of measurement.

In each of the eight small sub-figures that Figures 16 and 17 consist of, the frequencies of the first formant are on the vertical axis, those of the second formant on the horizontal one, the origo on the upper right-hand corner. Because of every speaker's different vocal characteristics, the absolute frequencies are irrelevant. The scales of the two axis are linear and the ratio between the two scales is the same in every figure. The vowel frame helps to relate diphthong frequencies to vowel qualities and to compare the diphthong qualities of different speakers. To further help the comparison, each of the small figures has been calibrated so that the distance between /ɪ/ and /ɔː/ is about equal in every figure.

There are differences in the shape of the four-vowel frame between the speakers. Comparing the second formant frequencies of the other vowels to that
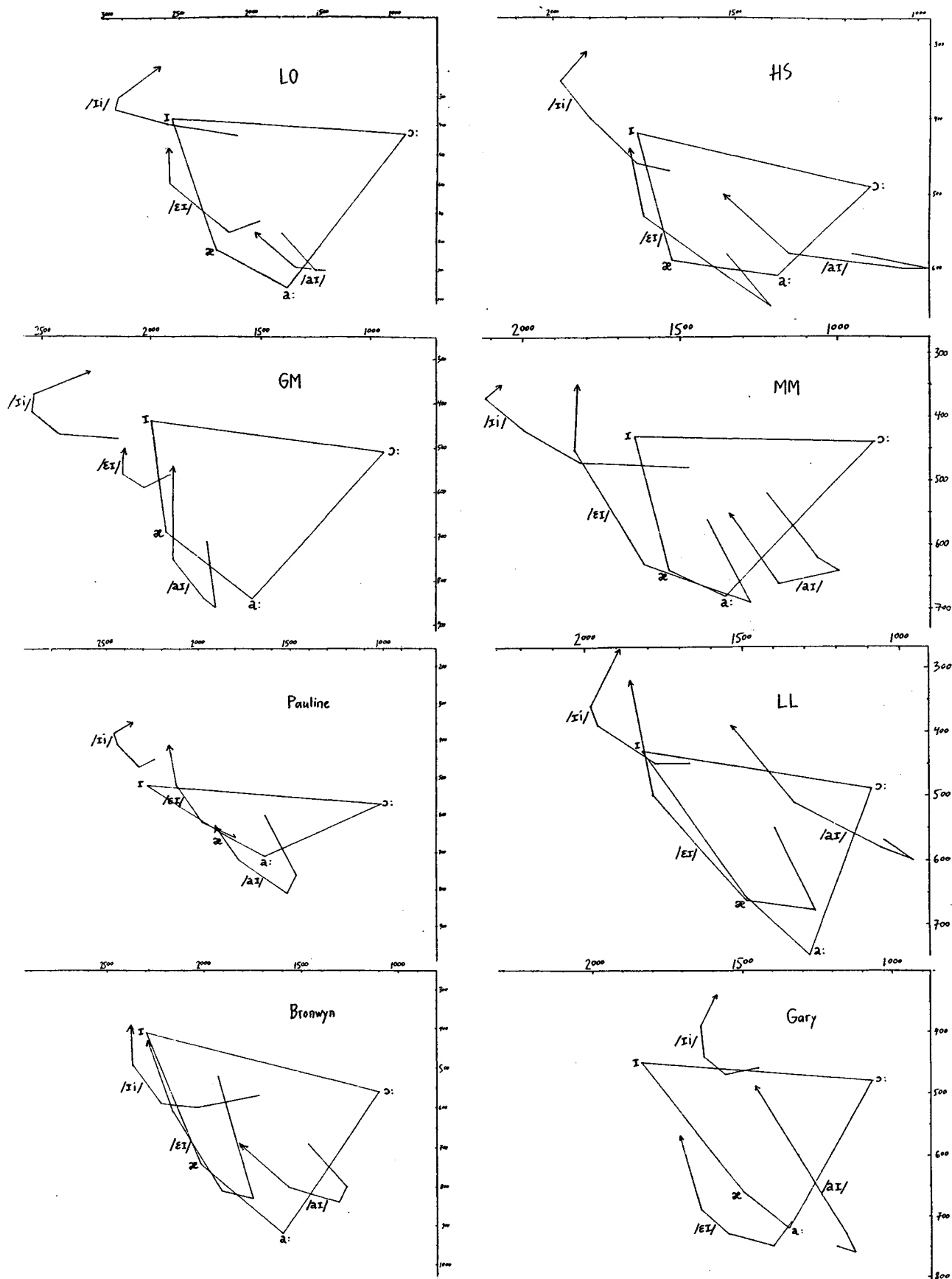
Figure 16. Average movements of the frequencies of F1 and F2 in the tokens of /ɪi/, /ɛɪ/, and /aɪ/ measured in the speech of the eight speakers under study. For each speaker, also the average frequencies of /ɪ/, /æ/, /aː/, and /ɔː/ are presented.
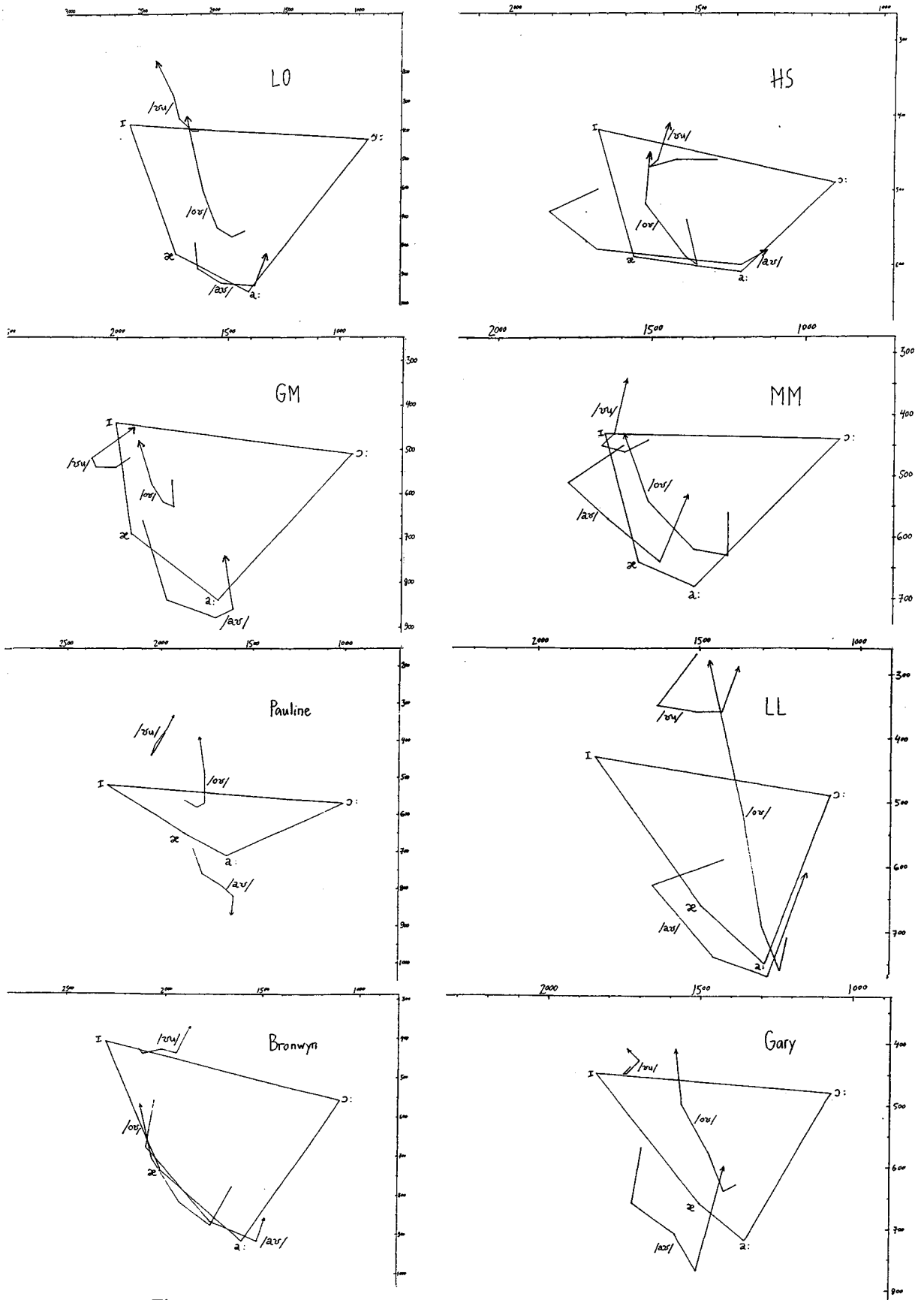
Figure 17. Average movements of the frequencies of F1 and F2 in the tokens of /ʊʊ/, /oʊ/, and /aʊ/ measured in the speech of the eight speakers under study, together with the four-vowel frame.

of the relatively back and stable /ɔːː/, it seems that Meikle Meecham's, Gillian Meecham's, Pauline's, and Leslie Oldfield's /aː/ is a relatively front one whereas that of Lew Lethlein is nearly a back vowel. It could be suggested that if the fronting of /aː/ is a change in progress, then the backness of Lew Lethlein's /aː/ would simply be due to his age. However, the /aː/ of the youngest speaker in the sample, Gary, is nearly as back.

When the F1 of /æ/ is compared to the first formant frequencies of the most open simple vowel /aː/ and to that of the closest vowel of the frame, /ɪ/, it appears that Gillian Meecham's, Bronwyn's, and Pauline's /æ/ vowels are relatively close whereas those of Heath Sandercock and Meikle Meecham are nearly as open as their /aː/.

When the F2 of /æ/ and /ɪ/ are compared, there possibly seems to be variation also in the frontness of /ɪ/ in the present data: in Gillian and Meikle Meecham's, Heath Sandercock's, and Leslie Oldfield's vowel frame, /ɪ/ and /æ/ are very nearly equally front, whereas Pauline's /ɪ/ is very much more front than her /æ/ even though her /æ/ and /aː/ are both quite fronted.

When the F1 of /ɪ/ and /ɔː/ are compared, /ɪ/ is clearly closer than /ɔː/ in Bronwyn, Heath Sandercock and Lew Lethlein. The F1 frequencies are about equal in Meikle Meecham: is his /ɪ/ therefore a very open one or his /ɔː/ a very close one? Pauline's vowel frame has very small variation of F1; her speech might thus be an example of pancake vocalism (see above, Chapter 1.1.1).

In Table 11 below, the results of the auditory estimation of the vowel quality of the diphthongs measured for Figures 16 and 17 are presented. In the following, variation in the six diphthongs of the eight speakers is discussed. First, the effects of the immediate consonantal environment will be discussed to eliminate possible sources of bias. Therefore, the data in Table 11 are organized according to consonantal environment.

4.2.1 Effects of the Environment

Effects of the same consonantal environment may be different in different speakers. An example is prenasal /æ/, which also according to literature is raised "in some speakers" (see above, Chapter 1.1.1, and Oasa 1989:286). In the present data, prenasal /æ/ (excluded from the vowel frame averages) has lower F1 and higher F2 values than nonprenasal /æ/ in the speech of Meikle Meecham (see above, Figure 13), Heath Sandercock, Lew Lethlein, and

Table 11. The results of the auditory evaluation of the vowel quality of the diphthongs measured for Figures 16 and 17 organized according to consonantal environment. For each speaker, prenasal environment of the diphthong /aʊ/ and lateral and retroflex environment of /ɹi/, /ɛɪ/, /aɪ/, /uu/, and /ou/ is indicated.

	G	B	P	LL	MM	GM	HS	LO
/ii/ 11, 12, 13 /ɹ-/ /l-/	ii iⁱ	ëɪ ɪə	ĩ ii i	ɪ ɭ̥ɪ	iⁱ ei iⁱ	ii ii ɪ̟	ĩ̞̃̃ Ii	ai: ei̞
/ɪɜ/ 21, 22, 23 /ɹ-/	æi	æⁱ ̟æⁱ ̞æⁱ iə	æ̞ⁱ ̟ iᵊ	ʌaɪ ɪɪ	i ei ɪ̟ ɒi	ɪ̟æ ɛ̞ɜ	æɪ æe æ̞ⁱ aɪ	ɛ̞ɪ̃ æ̞ⁱ̃ æ̞ɪ̃
/aɪ/ 31, 32, 33 /ɹ-/	a̞ɪ̃ ɐⁱ̞ aᵊ	aⁱɒ aⁱə aⁱɒ	ɑ̞ɪ ɑ̞	ɑ̞ʌ aᵊə ɒ̞	ɑ̞ᵉ ɑ̞ᵉ ɑ̞ᵊ ɒᵉ	ɑᵉ aⁱ̟ aɪ ɑᵉ	ɑᵉ ɒᵊ ɑᵊ	ɑ̞ⁱᵊ ɑ̞ⁱᵊ ɑ̞ⁱᵊ
/uu/ 41, 42, 43 /ɹ-/	ʌ̞ɣ ɣ	ʌ̟ʏ ʏ̞ nʏ	ʏ̞ ë̞ ʌ̟	Ɣᵉ ʌᵊ ̟ʏ̞	Ɣ̞ ʏ̞ ʏ̟ ʏᵊ ̟æ̞ᵊ	ɣ̞ʏ ʏ̟ ʏ̟	ʏ̟ ʌ̞ɣ ̞ʏ̞	ʏ̟ ʌ̟ʏ ʏ
/ou/ 51, 52, 53 /ɹ-/	ʌ̞ɔ ̃ɔ̞ ɣᵊʏ	ʌ̞ʏ ɑ̞ᵊ ̟ɣ̞ ɔᵊ	ö̞ ̟æ̞ʏ̞ ̟ ɔ	öᵊ ɑ̞ᵊ ̞ æ̞ᵊ	ö̞ʏ ɔ̞ʏ ö̞ʏ ɔ̟ʏ	æ̞ᵊ̟ öᵊ æ̞ᵊ ö̞ ̟æ̞ᵊ	æ̞ᵊ æ̞ᵊ æ̟ᵊ	a̞ᵊ ö̞ʏ̟
/aʊ/ 61, 62, 63 /u-/	ɔ̃æ̞ ʌ̞æ̞ ṽæ̞ ̟ɔᵊ	ɔ̞ʒ̃ ʌ̞æ	æ̞ⁱ æ̞ʒ	ɔæ æ̞ʒ	aʒ ɔʒ aʒ	öᵊ ɔ̞ᵊ ɔ̞ᵊ	ɔ̞ʒ̃ ɔ̞ʒ̃ ɔ̞ʒ̃	a̞æ æ̞ʒ̃ öⁱ̟æ

possibly Gary and Bronwyn. In the speech of Gillian Meecham, however, the tokens of prenasal /æ/ measured have a higher F1 value and a slightly lower F2 average than her nonprenasal tokens.

According to the present data, also the quality of a diphthong may be conditioned by the prenasal environment. In Figure 18 below, an example of the diphthong /aʊ/ in the speech of Lew Lethlein is presented: the average of five tokens in prenasal environment in the words *down*, *towns*, *round*, and *underground* and the average of five tokens before a voiceless plosive in the words *out* and *outback*. The phonetic quality, lexical environments, and durations of the tokens are presented in Appendix 4. The auditory phonetic value of Lew Lethlein's preplosive /aʊ/ ranges from [ɑʊ], [a̠o], and [ao] to [æ̠ɔ] and [æɔ], whereas his prenasal /aʊ/ diphthongs in the data begin with a half-open front phonetic quality: [ɛo], [ɛ̃o], [ɛɔ], or [ɛɑ]. Also on the formant chart, the movement of the prenasal /aʊ/ begins at a more front and slightly more close position, clearly nearer to Lew Lethlein's average /ɪ/ value than to that of his average /æ/. In the prenasal case, the diphthong movement is also larger than in the non-prenasal position. Could the fronting and raising of the starting point of /aʊ/ in prenasal environment in some speakers be connected to the raising and fronting of /æ/ in the same environment? At least both occur in Lew Lethlein's speech.
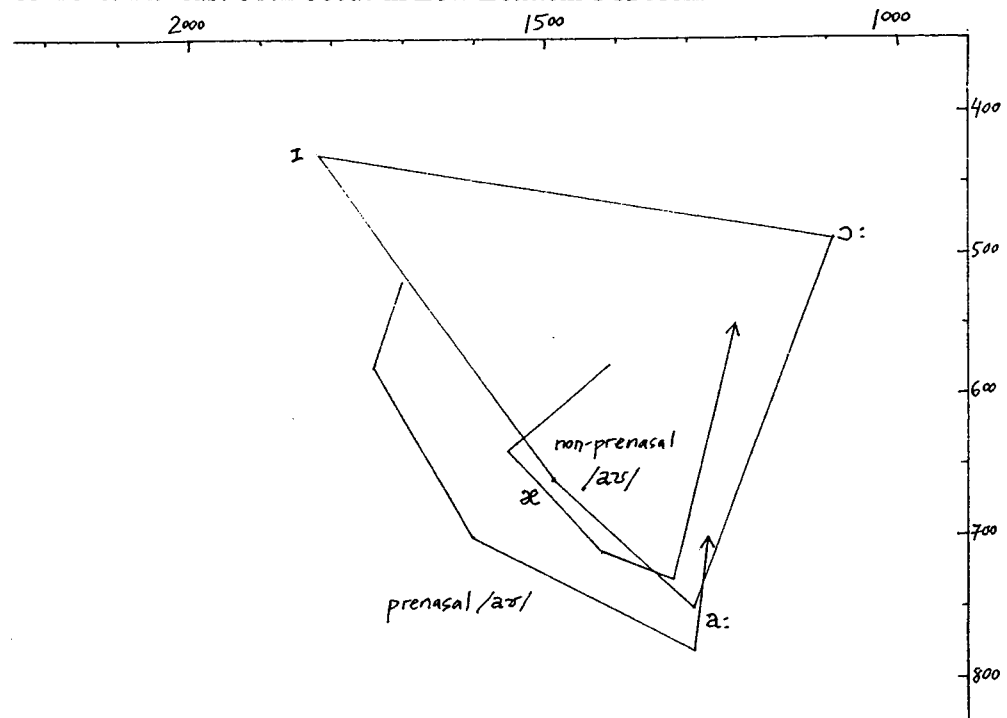
Figure 18. Ten tokens of the diphthong /aʊ/ in preplosive and prenasal environment in the speech of Lew Lethlein.

Because in Lew Lethlein's speech there are enough stressed-syllable tokens of /aʊ/ in non-prenasal environment, his average /aʊ/ in Figure 16 does not include prenasal tokens; the averages of Heath Sandercock, Gillian Meecham, Pauline, Bronwyn, and Gary do. A similar tendency for /aʊ/ to have a fronted and raised starting point in the prenasal environment can be observed in the present measurements in the speech of Heath Sandercock and possibly Bronwyn but not in the tokens of Gillian Meecham, Pauline and Gary.

In Table 11 above, the phonetic qualities of the tokens of prenasal /aʊ/ are presented on a separate line. The differences in phonetic script even in the tokens of Heath Sandercock and Bronwyn are not as systematic as in Lew Lethlein's example. Nasality is observed in the prenasal environment, except in Gillian Meecham's token.

Other alveolar environments in the data with a possible effect on diphthong quality include the environment following a lateral or a retroflex. Postlateral tokens are included only in the data of Bronwyn's and Gary's /ɪi/ and Bronwyn's /aʊ/. The movements of the frequencies of Bronwyn's and Gary's /ɪi/ tokens included in the study plus an extra token by Bronwyn in postlateral environment (numbered a in the picture) are shown in Figures 19 and 20 below. Bronwyn's extra token has a longer duration (303 ms) than the other ones (161, 169, and 198 ms); it starts further back than the nonpostlateral tokens (numbers 11 and 13 in Figure 19) and a wider movement is involved. The back starting point is not only the effect of duration because also the other postlateral token by Bronwyn, number 12 in Figure 19, starts further back and involves a larger movement than her non-postlateral tokens of similar duration. According to Table 11, there is no great difference in the audible phonetic quality between the tokens.

Gary's postlateral token, number 11 in Figure 20, has a lower F2 value throughout than his other tokens; it may be caused by the environment. The movement of his postlateral token is smaller than that of the other tokens, probably because its duration is shorter (99 ms vs. 119 and 186 ms). According to Table 11, also its audible phonetic quality is different from that of the other tokens.

Gary's only token in nonlateral and nonretroflex environment is number 12; his token number 13 is preceded by an /ɹ/ which possibly has a lowering effect on the F2 values. In an environment of alveolar obstruents, then, Gary's average /ɪi/ might be situated slightly more to the left on the formant chart
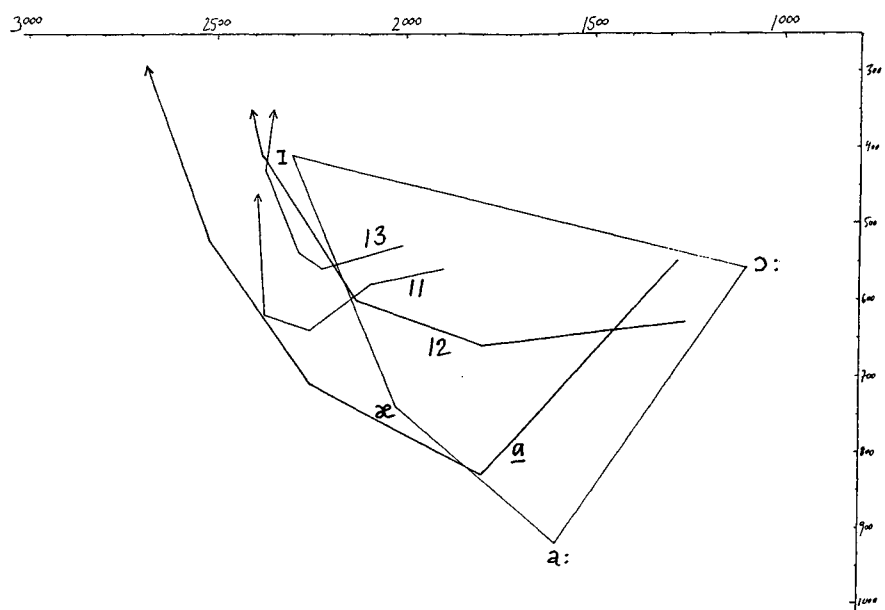
Figure 19. Movements of the frequencies of Bronwyn's /ɪi/ tokens in postlateral environment (numbers 12 and <u>a</u>) and in other alveolar environment (numbers 11 and 13).
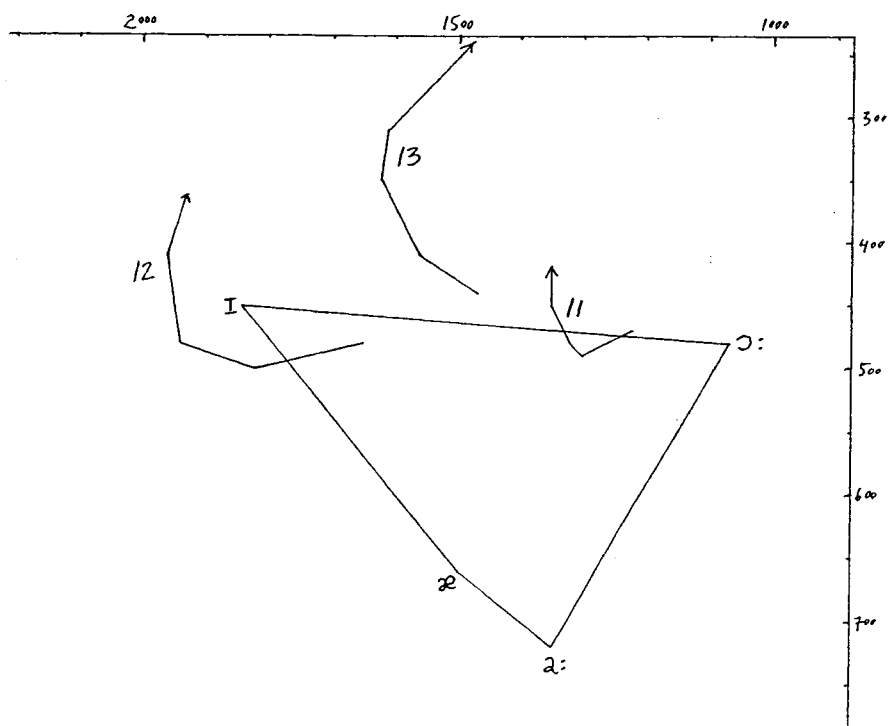
Figure 20. Movements of the frequencies of Gary's /ɪi/ tokens. Token number 11 is preceded by a lateral and number 13 by a retroflex consonant.

and Bronwyn's average /ɪi/ might involve less of a movement than in Figure 16.

On the basis of the scanty data of Table 11, firm conclusions cannot be drawn about the effect of the environment following an /ɹ/ on diphthong quality. It could be tentatively suggested that in the speech of Heath Sandercock a preceding retroflex might make the quality of /ɛɪ/ broader; this was suggested already above in Chapter 5.1.2 on the basis of larger data. The position of Gary's /ɛɪ/ tokens in Table 11 also suggests the same but, as can be seen in Appendix 3, his token number 23 is preceded by a palatoalveolar affricate [tʃh] which might cause the vowel quality to move forward; a preceding retroflex is thus not the only possible explanation for the fact that the quality of his tokens 21 and 22 is more retracted than that of number 23.

Environments other than alveolar are not indicated in Table 11. There are nineteen cases of either a preceding or a following non-alveolar environment in the data, sixteen of which occur in the three speakers of *Coffee break* because of the sparseness of their data. The diphthong the most difficult to find in an alveolar environment is /ʊu/: eight of the tokens have a following non-alveolar environment, in five cases an interdental fricative. Four tokens of /oʊ/ have an immediate nonalveolar environment: a preceding or following interdental or a following palato-alveolar. One of the environments the most likely to affect the diphthong quality are the palatoalveolar environment of the forward-gliding diphthongs bringing the vowel quality towards [i] (see e.g. Pauline 13 and Gary 23). Another obvious source of bias is a vowel following the diphthong /ʊu/ in Bronwyn's token number 41. The vowel causes her diphthong to occur in an open syllable which in this case has a drastic effect on the vowel quality: instead of a small movement around her /ɪ/ region, which is characteristic of her other /ʊu/ tokens of equal duration, there is a large movement starting from the front central region and moving backwards towards [u] quality (see above, Chapter 1.3 for the effect of syllable structure on the quality of /ʊu/). The movements of the frequencies of Bronwyn's /ʊu/ vowel tokens are presented in Figure 21 below where the difference is evident. Without the open-syllable token, Bronwyn's average /ʊu/ in Figure 17 would be situated around the area of her average /ɪ/ and involve very little of a movement.
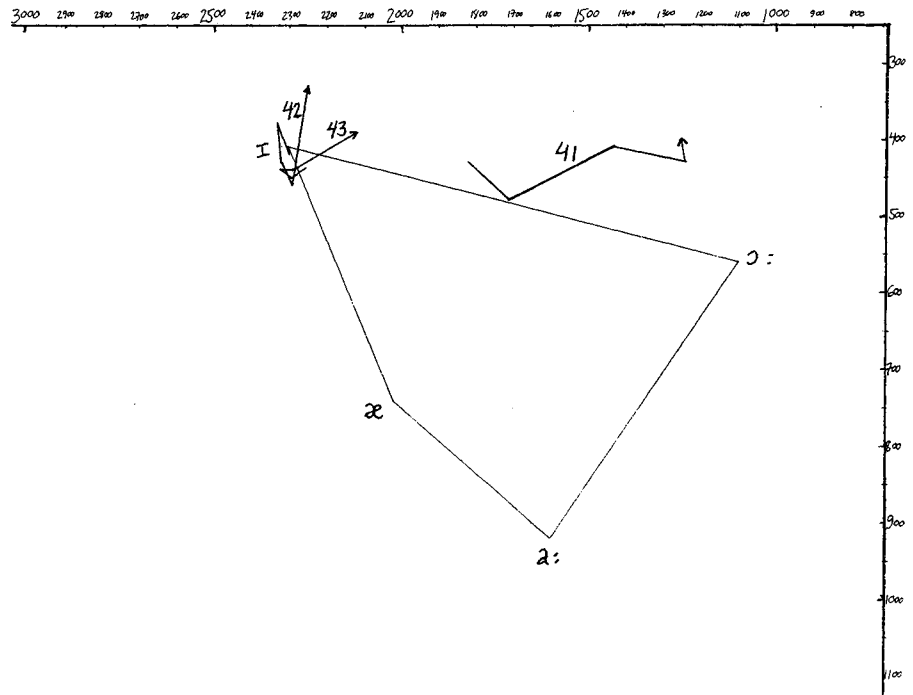
Figure 21. Movements of the frequencies of Bronwyn's /ʊu/ tokens. Token number 41 occurs in an open syllable and numbers 42 and 43 in a close syllable.

4.2.2 Variation within each Language Course Material

Because the absolute frequencies in Figures 16 and 17 above are irrelevant and because the phonetic script in Table 11 is necessarily subjective, the results below will be based on a series of comparisons of the diphthong qualities in the data, in which the average diphthongs of the different speakers will be ordered according to their degree of broadness. In the first series of comparisons, male and female speakers of the two language course materials will be considered separately; in the second series of comparisons, the two materials will still be considered separately but the diphthongs of the two genders will be compared with each other. The third series of comparisons will occur across the two materials, but the two genders will still be considered separately. Finally, all the speakers will be considered together and compared across the two materials and across genders. The first series of comparisons will begin with the male speakers of *Down Under*.

4.2.2.1 Genders considered separately

Male speakers of *Down Under*

According to Table 11 and Figure 16 above, the qualities of the diphthongs /ɪi/ and /ɛɪ/ are on an average broader in the speech of Meikle Meecham than in the speech of Heath Sandercock. In the speech of Lew Lethlein, the qualities of the same diphthongs seem to vary according to the duration of the token in question (see Appendix 3 for the durations). Lew Lethlein's durations for /ɪi/ are the shortest in the data. His shortest token (number 12) is monophthongal but the token with equal duration to that of the other speakers' tokens (number 11) is diphthongal with a prominent central onglide. The sample of Lew Lethlein's /ɪi/ may therefore be unrepresentative of his usual diphthong qualities. In Table 11, his /ɪi/ tokens appear less broad than those of Meikle Meecham and the same is true in Figure 16, especially if the possible backness of Meikle Meecham's /ɪ/ is considered, but in a larger sample, the difference between Meikle Meecham's and Lew Lethlein's /ɪi/ would probably be smaller. In Table 11, Lew Lethlein's /ɛɪ/ tokens are broader than those of Meikle Meecham. The same is true in Figure 16 only if the relative backness of Lew Lethlein's /æ/ and /aː/ is considered. The differences between the /ɛɪ/ qualities of these three men are not great.

In Table 11, the /aɪ/ tokens of the three men vary in the amount of rounding of the first element; in Figure 16, some variation exists in the F2 value of the glide's starting point. Heath Sandercock has the most backish starting point and the most rounded tokens, Meikle Meecham the least of both. The F2 of the starting points of all their /aɪ/ tokens is below that of /aː/, in the case of Heath Sandercock and Lew Lethlein, below that of /ɔː/ as well. The perceived phonetic difference between the men, however, is not great.

In Figure 17, /ʊu/ involves quite a small movement in all the three men of *Down Under*. It is largest in the speech of Lew Lethlein who has got the longest durations. Lew Lethlein's glide is central to front, very close, and has a backing direction resembling the classical Broad /ʊu/ described by Mitchell and Delbridge (1965:78,82-85) (see discussion above, Chapter 1.2). Therefore, if the broadness of /ʊu/ increases with the amount of movement, Lew Lethlein's /ʊu/ is the broadest one. If the broadness of a closed-syllable /ʊu/ increases with frontness, however (see Figures 3 and 4 above in Chapter 1.2), Meikle Meecham's /ʊu/ is the broadest: it moves just behind the region of his average /ɪ/, the quality of which, as was suggested above, is possibly a fairly back one. The differences in the backness of the men's /ʊu/ were not, however, observed in the audible quality of the diphthongs (see above, Table 11).

In the realizations of the diphthong /oʊ/ in Figure 17, Lew Lethlein's starting points are the most open and back ones when the amount of fronting of Meikle Meecham's /aː/ and the backing effect of the preceding retroflex on the starting point of two of Meikle Meecham's tokens are taken into account. Lew Lethlein's /oʊ/ involves a large, only slightly fronting upward movement from the area behind his average /aː/; therefore, if the broadness of /oʊ/ is judged along Mitchell and Delbridge's (1965) lines from the openness of its starting point (see above, Chapter 1.2, Figures 3 and 4), Lew Lethlein's is the broadest. Also in Table 11, Lew Lethlein's qualities are the most resemblant of the Broad qualities given in previous studies (see above, Chapter 1.2, Table 5). The movements of Meikle Meecham's and Heath Sandercock's /oʊ/ are smaller and more front than Lew Lethlein's, even though in all the three men, the starting point of /oʊ/ is more open than that of /aʊ/. Heath Sandercock's starting point is perhaps more open then Meikle Meecham's, but when the starting point F1 values of /oʊ/ and /aʊ/ are compared, the difference in the starting point values is bigger in Meikle Meecham. Also in Table 11, Heath

Sandercock's starting points are closer than those of Meikle Meecham and Lew Lethlein.

In Figure 17, Meikle Meecham's and Heath Sandercock's /aʊ/ diphthongs are considerably broader than those of Lew Lethlein: their backward movement starts from beyond the F2 of their /ɪ/ whereas the backward movement of Lew Lethlein's /aʊ/ starts with an F2 slightly more front than that of his /æ/, which is a fairly back one. The same difference can be seen in Table 11: the starting points of Meikle Meecham's and Heath Sandercock's /aʊ/ range from [ɛ] to [ɛ̣], whereas Lew Lethlein's starting points are much less broad, [æ], [æ̣] and [a̠].

Lew Lethlein is broader than Heath Sandercock in the diphthongs /ɛɪ/, /ɪi/, and /oʊ/, but in /aʊ/ and /aɪ/, Heath Sandercock is broader than Lew Lethlein. In the diphthong /aɪ/, the difference between the men is not great, but in /aʊ/, the difference is vast and the audible qualities of Lew Lethlein's tokens in Table 11 cluster with Leslie Oldfield's and Pauline's rather than with Heath Sandercock's and Meikle Meecham's and are among the least broad in the whole of the data.

Variation between Heath Sandercock and Meikle Meecham is slightly more consistent than the one between Heath Sandercock and Lew Lethlein. The average diphthongs of Meikle Meecham are broader than those of Heath Sandercock in /ɪi/, /ɛɪ/, /oʊ/, and possibly /aʊ/; Heath Sandercock is broader in /aɪ/, even though the difference is not great. Lew Lethlein is broader than Meikle Meecham in /oʊ/, /ɛɪ/, and /aɪ/, whereas Meikle Meecham is broader than Lew Lethlein in /ɪi/ and especially in /aʊ/. When all the diphthongs are considered, the largest variation in the men of *Down Under* occurs between Heath Sandercock and Meikle Meecham; if /aʊ/ is left out of consideration because of Lew Lethlein's deviant quality, the largest variation occurs between Heath Sandercock and Lew Lethlein.

Female speakers of *Down Under*

In the women of *Down Under*, Gillian Meecham generally has more Cultivated qualities of the forward-gliding diphthongs both in Figure 16 and in Table 11 than Leslie Oldfield. The difference in vowel quality holds even when the backness of Gillian Meecham's /ɪ/ is considered and when the backing effect of the retroflex on the starting point of an /ɪi/ token by Leslie Oldfield is taken into account. Gillian Meecham's /ɛɪ/ involves very little of a

movement, even though both the women have two tokens in the environment of a preceding retroflex. Both in Figure 16 and in Table 11, Leslie Oldfield's /ɛɪ/ is broader than Gillian Meecham's. The differences between Leslie Oldfield and Gillian Meecham in Figure 16 are the greatest in /aɪ/ where Leslie Oldfield's average diphthong moves behind her average /aː/ whereas Gillian Meecham's average movement is situated well forward of her own /aː/ and nearer to her /æ/ which, as suggested above in Chapter 4.2, is possibly very front in quality.

In Figure 17, Leslie Oldfield's /ʊu/ is more close and less front that that of Gillian Meecham. Neither involves a large movement; the direction of Leslie Oldfield's /ʊu/ is closing. Gillian Meecham's /ʊu/ forms a tiny fronting glide just below the region of her average /ɪ/, which, as was suggested above, is possibly of a fairly backed quality. If a less front /ʊu/ is more Cultivated, then Leslie Oldfield would here be more Cultivated than Gillian Meecham. In Table 11, however, the difference cannot be seen and it is thus possibly not audible at all.

In Figure 17, Leslie Oldfield's average /oʊ/ has a slightly longer duration and involves a larger closing movement than that of Gillian Meecham. When the average starting point of /oʊ/ is compared to the speakers' /ɪ/ and /aː/, Leslie Oldfield's starting point is more open and back. Also in Table 11, Leslie Oldfield's starting points are more open and less rounded than those of Gillian Meecham and she is thus again broader than Gillian Meecham.

In the diphthong /aʊ/ in Table 11, the difference is clear: Gillian Meecham's starting point values range around her [a] and further back, also in the prenasal environment, and Leslie Oldfield's starting points range between [æ], [æ̞] and [a̝]. The difference in Figure 17 is less clear but it exists, Leslie Oldfield's /aʊ/ being again slightly broader than that of Gillian Meecham. When Figures 16 and 17 are compared, there is a clear difference between Leslie Oldfield and Gillian Meecham also in the acoustic measurements: in Gillian Meecham, the starting points of /aɪ/ and /aʊ/ are around the same area and the glides are only slightly crossed, whereas in Leslie Oldfield, the starting point are clearly crossed and the glides run towards each other on the vowel chart, meeting only at their end points. As was reported above in Chapter 1.3, the starting points of /aɪ/ and /aʊ/ do not cross in Cultivated pronunciation (Wells 1982: 292, 299, 310, 597; Cochrane 1989:179).

Summing up, Leslie Oldfield is broader than Gillian Meecham in /ɪi/, /ɛɪ/, /aɪ/, /oʊ/, and /aʊ/; according to Table 11, no audible difference exists between their qualities of /ʊu/.

Female speakers of *Coffee Break*

In the average diphthongs of Figure 16, the difference between the women of *Coffee Break* is clear: Bronwyn's diphthongs are clearly broader than those of Pauline. The difference in vowel quality is the greatest in /ɪi/, where Bronwyn's average starts around the front half-close vowel quality even without the postlateral token discussed above in Chapter 4.2.1. Pauline's average /ɪi/ does not start below her average /ɪ/ region even when the short monophthongal [i] token occurring in the environment of a following palatoalveolar is excluded. In Figure 16, Pauline's average /ɛɪ/ has the starting point just behind the region of her average /æ/ and the starting point of Bronwyn's /ɛɪ/ is halfway between /æ/ and /aː/. The differences of their /aɪ/ in Figure 16 are clearer: the starting point of Bronwyn's /aɪ/ is almost halfway between her /aː/ and /ɔː/ whereas Pauline's /aɪ/ curves just behind and below her average /aː/. In Table 11, Bronwyn's /aɪ/ quality is slightly rounded and Pauline has one monophthongal token.

Without the open-syllable token discussed above in Chapter 4.2.1, Bronwyn's /ʊu/ in Figure 17 would be more monophthongal, situated around the region of her average /ɪ/. Also Pauline has an environment which possibly is open syllable: in the environment of token 42 (see Appendix 3) after the word *do* and before the word *there*, there may be an adverbial *in* which in the colloquial style has been shortened to *'n.* Even the /n/ is hardly audible but it could be argued that the dropped /ɪ/ has had an effect on the quality of the /ʊu/ token which is slightly less rounded than her other tokens (see Table 11) even though it has a longer duration (see Appendix 3). When these special cases are excluded, Bronwyn's /ʊu/ is more front than Pauline's.

In Table 11, Bronwyn's /oʊ/ tokens are on an average slightly less rounded than Pauline's ones and Bronwyn's end points are more front; the openness of the starting points is marked the same. In Figure 17, however, they have a great difference in quality. Bronwyn's average /oʊ/ has a much more open starting point, slightly forward of and nearly as open as her /aː/, and the direction of the glide is both closing and fronting: through the area of /æ/ towards that of /ɪ/. Pauline's average /oʊ/ starting point quality is almost as close as her /ɔː/ and slightly more back than her /æ/ and the direction of the movement is closing. Bronwyn's average /aʊ/ moves more than Pauline's and it has a more front starting point even when the prenasal tokens are excluded; it

is thus broader. Also in Table 11, Bronwyn's starting points of /aʊ/ are more front and close than those of Pauline. Bronwyn is thus broader than Pauline in all of the diphthongs under study.

Because Gary is the only male speaker in *Coffee Break*, his diphthongs will not be considered under this first series of comparisons.

4.2.2.2 Summary of the comparisons

To help the reader, the results of the series of comparisons of the present chapter are broadly summarized in graphic form in Figure 22 below, where the results are presented separately for each diphthong. The results for the diphthong /ʊu/ are not included in the figure, because little or no variation according to the degree of broadness was observed in its audible quality. The average broadness of the tokens analyzed from each speaker is presented relative to the broadness of the other speakers' tokens, with the users of the

High-Prestige Variants   Low-Prestige Variants

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         ┌─────────────────────────────────────────────────────────────┐
         │GM                           LO                                │
/ɪi/     │HS                           LL                           MM   │
         │    P                                        B                 │
         │    G                                                          │
         ├─────────────────────────────────────────────────────────────┤
         │GM            LO                                               │
/ɛɪ/     │                                      HS            MM LL      │
         │              P         B                                      │
         │                                  G                            │
         ├─────────────────────────────────────────────────────────────┤
         │GM                           LO                                │
/aɪ/     │                                MM        LL        HS         │
         │                          P         B                          │
         │                              G                                │
         ├─────────────────────────────────────────────────────────────┤
         │                                                               │
/ʊu/     │                                                               │
         │                                                               │
         ├─────────────────────────────────────────────────────────────┤
         │GM                      LO                                     │
/oʊ/     │                             HS MM                        LL   │
         │              P                           B                    │
         │                        G                                      │
         ├─────────────────────────────────────────────────────────────┤
         │GM                      LO                                     │
/aʊ/     │                        LL                        HS      MM   │
         │              P                       B                        │
         │                        G                                      │
         └─────────────────────────────────────────────────────────────┘
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Figure 22. Broad summary of the data of Figures 16 and 17 and Table 11 above. The average broadness of the diphthongs of each speaker are presented relative to the broadness of the other speakers' tokens, with the users of the most high-prestige variants to the left and the users of the broadest variants to the right.

most high-prestige tokens to the left and the users of the broadest tokens to the right. The speakers are represented by their initials, the female speakers of *Down Under* occupying the top line of each ractangle, the next three lines being reserved for the male speakers of *Down Under*, the female speakers of *Coffee Break* and the male speaker of *Coffee Break*, respectively. The distances on the horizontal axis between the speakers' initials represent broadly the amount of difference between the speakers' average qualities relative to the whole range of qualities in the data and therefore, equal horizontal distances in different sounds do not represent equal phonetic distances. As can be seen from Table 11, the phonetic distances are the largest in /ɛɪ/, /aɪ/, and /aʊ/. In /ɛɪ/, the qualities range from Gillian Meecham's [ɛɪ] through Bronwyn's [æˑɪ] to Lew Lethlein's [ʌɪ] and [ɑɪ]. The phonetic distances are the smallest in /oʊ/, where the qualities range from Gillian Meecham's [əʊ] through Gary's [oʊ] to Lew Lethlein's [ʌʊ].

4.2.2.3 Comparison across genders

Male vs. female speakers of *Down Under*

When the women and men of *Down Under* are compared in Figures 16 and 17 and in Table 11, the difference between the two genders is the clearest in the diphthong /ɛɪ/: Leslie Oldfield's and Gillian Meecham's starting points in Table 11 range from [æ̝] and [ɛ̈] to [ɛ] and [ɛ̞] whereas those of the men range from [æ], [ɜ], and [ʌ̝] through [ʌ], [a], and [å] to [ɒ̝] and [ɑ]. In Figure 16, the average starting points of the men's glides curve around /aː/ whereas those of the women move around the /æ/ region or above.

There is a very wide difference between the /ɛɪ/ diphthongs of Gillian and Meikle Meecham, who run their sheep station together. Her /ɛɪ/ qualities are the most Cultivated in the data and his, the second broadest. In Figure 16, his average /ɛɪ/ quality has a more back starting point than even her average /aɪ/.

The difference between the genders in *Down Under* is almost as clear in the diphthong /aʊ/. In Figure 17, the backward movement of women's average /aʊ/ glides starts well behind and at least slightly below /æ/ whereas the men's backward glides start forward and above of their /æ/. In Table 11, the difference between Leslie Oldfield and Gillian Meecham on the one hand and Heath Sandercock and Meikle Meecham on the other hand is clear: the starting points of /aʊ/ for the women range between [æ] and [a̝] whereas

the starting point qualities of Heath Sandercock and Meikle Meecham are [ɛ] and [ɛ̞], the greatest difference occurring between Meikle and Gillian Meecham. As mentioned above, Lew Lethlein's /aʊ/ qualities in Table 11 cluster with those of the women, being more similar to Leslie Oldfield's than Gillian Meecham's qualities.

In the diphthong /ɪi/ in Table 11, the clear difference between the genders in *Down Under* breaks down: Leslie Oldfield's qualities of /ɪi/ are broader than those of Heath Sandercock and slightly less broad than those of Meikle Meecham. They are about as broad as those of Lew Lethlein. This may be partly due to the fact that, on an average, Lew Lethlein's durations are in this sound just half of Leslie Oldfield's; should his durations be nearer the average, also his qualities might be broader. In Figure 16, there is not a great difference between the /ɪi/ quality of Leslie Oldfield and Heath Sandercock or Lew Lethlein, especially when the tokens by each speaker in the environment of a preceding retroflex are excluded. Gillian Meecham's /ɪi/ in Figure 16 appears more Cultivated than that of the male speakers of *Down Under*. In Table 11, Gillian Meecham has the same /ɪi/ qualities as Heath Sandercock except for the nasalization; only her durations in Appendix 3 are longer than those of Heath Sandercock, a fact which normally favours broadness in pronunciation.

In the diphthong /ʊu/ in Table 11, there is no difference between the two genders of *Down Under*; in Figure 17, the qualities of Gillian and Meikle Meecham appear more front than those of Leslie Oldfield, Heath Sandercock, and Lew Lethlein.

In the diphthong /oʊ/ in Figure 17, there is a difference between the two genders of *Down Under* in the degree of openness of the starting point of the glide: in the men of *Down Under*, the F1 of the starting point of the /oʊ/ glide (the second point of measurement) is more open than the starting point of the /aʊ/ glide, whereas in the women of *Down Under*, /oʊ/ starts in a more close position than /aʊ/. In Table 11, Gillian Meecham's qualities are heard very much like those of Heath Sandercock and the qualities of Leslie Oldfield between those of Lew Lethlein and Meikle Meecham, in other words, there is a discrepancy between the auditory and acoustic estimations.

In the diphthong /aɪ/, Gillian Meecham is clearly more Cultivated than the male speakers of *Down Under*, both in Figure 16 and in Table 11. In Figure 16, Leslie Oldfield's /aɪ/ appears only slightly more Cultivated than that of Meikle Meecham. Also in Table 11, the qualities of the two speaker's /aɪ/

diphthongs are very similar except for the fact that Meikle Meecham has some rounding.

When the starting point qualities of /aɪ/ and /aʊ/ are compared, the wideness of the difference between Meikle and Gillian Meecham is again to be seen: in Figures 16 and 17, the starting points of her average /aɪ/ and /aʊ/ glides are only slightly crossed, whereas in his speech, the starting points of the average /aɪ/ and /aʊ/ glides are widely crossed and, running toward each other on the vowel chart, these glides are still very far apart even at their end points.

The gender difference in *Down Under* is not as clear between Leslie Oldfield and the three men as between the Meechams: Leslie Oldfield's /aɪ/ is almost as broad as that of Meikle Meecham, her /aʊ/ is as broad as Lew Lethlein's and in Table 11, her /ɪi/ is broader than that of Heath Sandercock. Her /oʊ/ in Figure 17 is less broad than that of the men, but in Table 11, the order is not so clear. The difference between Leslie Oldfield and the men of *Down Under* is the clearest in /ɛɪ/, where her average quality is slightly less broad than that of any of the men.

Female speakers vs. male speaker of *Coffee Break*

Also in *Coffee Break*, a clear-cut gender difference exists in the diphthong /ɛɪ/: in Figure 16 and Table 11, the diphthongs of the female speakers are slightly more Cultivated than Gary's. The comparison is made difficult by the fact that, because of lack of suitable data, Gary's environments are incompatible: two of his /ɛɪ/ tokens in Figure 16 and Table 11 occur in the environment of a preceding /ɹ/, which possibly backs the starting point of the diphthong, and one in the environment of a preceding palatoalveolar (see Appendix 3) with a possible fronting effect on the starting point.

When Bronwyn and Gary are compared, Bronwyn is either broader than or equally broad as Gary in diphthongs other than /ɛɪ/: in /ɪi/ and /oʊ/, she is broader than he; in Table 11, she is also broader in /aʊ/ and slightly broader in /aɪ/. In Figure 17, the starting point of Gary's backward glide in /aʊ/ is more front but Bronwyn's starting point is closer.

When Pauline and Gary are compared, Gary is either broader than or equally broad as Pauline: in addition to /ɛɪ/, his /aʊ/ is broader than hers, both on the basis of Figures 16 and 17 and of Table 11, and a slight difference may exist also in /aɪ/ and /ʊu/. In /oʊ/, the difference exists only in Figure

17. When the effects of a preceding retroflex and lateral on Gary's average /ɪi/ quality and the effect of a token with shorter duration on Pauline's average /ɪi/ quality are excluded, there is not much difference in their /ɪi/ qualities.

Even when all the diphtongs are considered, the difference between Pauline and Gary is very slight in comparison with that of the Meechams, as the diphthongs of both Pauline and Gary are considerably less broad than Meikle Meecham's and not as Cultivated as Gillian Meecham's.

4.2.3 Variation between *Down Under* and *Coffee Break*

In the following, broadness of the diphthongs will be discussed across the language course materials, first the two genders separately and then together.

4.2.3.1 Genders considered separately
Female speakers of *Down Under* vs. *Coffee Break*

In Table 11, the /ɪi/ qualities of Pauline are slightly less Cultivated than those of Gillian Meecham, especially when it is taken into account that Pauline's token number 13 is very short (54 ms) and occurs before a palatoalveolar (see Appendix 3). This holds true also in Figure 16 when this deviant token is omitted, even when the possible backness of Gillian Meecham's /ɪ/ is taken into account. Also Pauline's /ɛɪ/ and /aɪ/ are broader than Gillian Meecham's, both in Figure 16 and in Table 11.

In the diphthong /oʊ/ in Table 11, Gillian Meecham has the most close and rounded starting points of all the women. In Figure 17, Pauline's average starting point is even closer, even though the comparison is difficult because of the different shape of their vowel frames; compared with the F1 distance between /ɪ/ and /aː/, Gillian Meecham's /oʊ/ has the smallest movement. Also Pauline's /aʊ/ is broader than Gillian Meecham's in Table 11; in Figures 16 and 17, Pauline's average /aɪ/ and /aʊ/ widely cross each other which is not the case in Gillian Meecham's diphthongs.

Summing up, Gillian Meecham's average diphthongs are either more Cultivated or at least equally Cultivated than Pauline's ones and the difference is the greatest in /ɛɪ/, /aɪ/, and /aʊ/.

When the forward-gliding diphthongs of the rest of the women in *Down Under* and *Coffee Break* are compared with those of Gillian Meecham and Pauline, the /ɪi/ qualities of Leslie Oldfield and Bronwyn are broader than those of the two other female speakers, both in Table 11 and in Figure 16. Bronwyn's qualities are broader than those of Leslie Oldfield, especially when Bronwyn's postlateral token and Leslie Oldfield's token following a retroflex are excluded from the averages of Figure 16.

In Table 11 as in Figure 16, the /ɛɪ/ diphthongs of Gillian Meecham are the most Cultivated; her starting points range between [ɛ] and [ẹ]. In Figure 16 as in Table 11, Bronwyn's /ɛɪ/ qualities are again the broadest among the female speakers. The glide of her average /ɛɪ/ starts at a point

halfway between /æ/ and /aː/ and the qualities of the first elements in Table 11 are [æ] or [æ̆]. In Table 11 as in Figure 16, Pauline's /ɛɪ/ qualities are broader than those of Leslie Oldfield; Pauline's starting point qualities in Table 11 are [ɛ̠], [ɛ̠̆], and [æ] and those of Leslie Oldfield, [ɛ], [ɛ̆], and [æ̆].

Both in Figure 16 and in Table 11, Gillian Meecham's /aɪ/ is clearly different from that of the other women: it is situated very much forward of her /aː/ and the starting point qualities include [a] and [a̠] besides [ɑ]. In the other women, /aɪ/ in Figure 16 curves well behind /aː/ with varying degrees of closing; it is the closest in Bronwyn and the most open in Pauline. In Table 11, the starting point quality of /aɪ/ in Leslie Oldfield, Pauline and Bronwyn is around [ɑ] and the differences between the three women are small: the starting point is slightly rounded in Bronwyn and slightly more front in Pauline. There is lengthening of the first element and varying degrees of monophthongization in all tokens except the more fronted ones of Gillian Meecham and Pauline.

When the rounded diphthongs /ʊu/, /oʊ/, and /aʊ/ of the women of *Down Under* and *Coffee Break* are compared in Figure 17, Gillian Meecham has the most front tokens of /ʊu/. When Bronwyn's open-syllable token is excluded, her average in Figure 17 is not much further back either, especially when the possible backness of Gillian Meecham's /ɪ/ is taken into account. Leslie Oldfield's and Pauline's /ʊu/ averages in Figure 17 are slightly more back; the backness of Leslie Oldfield's average may possibly be due to her two retroflex environments. In Table 11, there are no great differences in the degree of fronting between the women; the most frequent qualities are [ʏː] and [yː]. Pauline's shortest token (64 ms) is central [ʉ] and her possible open-syllable token 42 has less rounding: [ø̞˙]. In the present closed-syllable environment, also great glides are missing; there are only [ẙʏ] in Gillian Meecham and [ʉy] in Leslie Oldfield, which is her longest token (127 ms) and which occurs after a flapped [ɾ]; the glide may be the effect of the environment. Bronwyn's open-syllable token 41 has a backing glide which according to Oasa (1989) is the norm in Sydney (see above, Chapter 2.x).

In the diphthong /oʊ/ in Table 11 and in Figure 17, the most Cultivated qualities occur in Pauline and Gillian Meecham. The openness of the starting point in Figure 17 is the greatest in Bronwyn and she also has the most front end points, both in Figure 17 and in Table 11.

In /aʊ/ in Figure 17 and in Table 11, Bronwyn's starting points are on an average the most close and front, also when the effect of her prenasal

environment is taken into account. In Table 11, the starting points of Gillian Meecham are the most back. In Figure 17, the /aʊ/ diphthongs of Gillian Meecham, Leslie Oldfield, and Pauline are very much alike except that Leslie Oldfield's average starting point is more close. When the starting points of /aɪ/ and /aʊ/ are compared in the women of the data, in Gillian Meecham, the starting points almost do not cross, which is characteristic of Cultivated speech. The crossing of the starting points is the widest in Bronwyn. In Pauline and Leslie Oldfield, the starting points are crossed but not as widely as in Bronwyn.

Summing up, Bronwyn of *Coffee Break* is broader than the other female speakers in all of the diphthongs, whereas Gillian Meecham of *Down Under* is in each of the diphthongs studied the most Cultivated female speaker in the data. Pauline of *Coffee Break* is broader than Leslie Oldfield in /εɪ/, equally broad as Leslie Oldfield in /aɪ/ and /aʊ/, and less broad than Leslie Oldfield in /ɪi/ and /oʊ/. In each of the diphthongs studied, the average quality of the *Coffee Break* women is broader than the average quality of the *Down Under* women.

Male speakers of *Down Under* vs. *Coffee Break*

When the diphthongs of Gary of *Coffee Break* are compared with Meikle Meecham and Lew Lethlein, Gary's /ɪi/ in Figure 16 involves less of a movement than Meikle Meecham's one, especially if the tokens following a retroflex and a lateral are excluded (see Figure 20 and the discussion above in Chapter 4.2.1). In Table 11, Gary's preplosive token (number 12) and the one in retroflex environment (number 13) are less broad than those of Meikle Meecham. The quality of Gary's postlateral token is nearer to Meikle Meecham's qualities, but in the data analysed there are no other postlateral tokens of /ɪi/ by the male speakers that it could be compared with. The comparison between Lew Lethlein and Gary is more difficult because of unequal durations and phonetic environments, but if tokens of equal duration and similar environment are compared, Lew Lethlein's token number 11 is clearly broader than Gary's token number 12. In Figure 16, Gary's /ɪi/ involves less of a movement than Heath Sandercock's one. The difference is even clearer if Gary's postlateral token (G_11) and the tokens following a retroflex (HS 12, G 13) are excluded. In Table 11, Gary's preplosive token (G 12) and the one in retroflex environment (G_13) are as Cultivated as those of Heath Sandercock. Gary's

postlateral token has a broader quality, but there are no other postlateral tokens measured in the men in the data that it could be compared with.

Because of the sparseness of Gary's data, his average /εɪ/ in Figure 16 includes a deviant token (number 21), the formants of which are not clear and which probably is reduced. Without that token, Gary's average /εɪ/ in Figure 16 would comprise a larger movement which would start lower and slightly more front. Even when the token is included, Gary's /εɪ/ both in Figure 16 and in Table 11 is clearly less broad than Lew Lethlein's or Meikle Meecham's average /εɪ/: when the onglide is excluded, the F2 of the starting point of Gary's /εɪ/ glide is lower than the F2 of his /aː/, whereas the F2 of the starting points of Lew Lethlein's and Meikle Meecham's /εɪ/ glides is higher than the F2 of their /aː/ and Gary's transcribed starting point values are more front than those of Meikle Meecham and Lew Lethlein. If Gary's reduced /εɪ/ quality (G 21) is excluded from Figure 16, the starting point of his average /εɪ/ glide is more front than that of Heath Sandercock; if it is included, they start at about the same point. Their qualities in Table 11 are not far removed either.

After the onglide, at the second point of measurement, Gary's /aɪ/ in Figure 16 has a fully open F1 value, whereas Meikle Meecham's and Heath Sandercock's /aɪ/ qualities are less open than their /aː/ or the second point of measurement of their /εɪ/ glides. Lew Lethlein's /aɪ/ starts in a still less open position. Also in Table 11, Gary appears the least broad of the men in the diphthong /aɪ/, even though not far removed from Meikle Meecham: Meikle Meecham has somewhat more rounding than Gary, whereas Lew Lethlein's and Heath Sandercock's /aɪ/ values are still more rounded.

Gary's average /ʊu/ in Figure 17 resembles Meikle Meecham's one. When the environment following an /ɹ/ is excluded, the vowels are even more similar: very front and slightly more open than the /ɪ/. If Meikle Meecham's /ɪ/ is of a backed quality, Gary's /ʊu/ is the most front of all these three men. In Table 11, his qualities are short, front and monophthongal. As indicated above in Chapter x.x, the criteria for the degree of broadness of /ʊu/ are ambiguous and difficult to apply here, because the variation among the speakers is hazy; this question will be discussed more thoroughly in Chapter 6 below.

In Table 11, Gary's /oʊ/ qualities resemble those of Meikle Meecham. Gary's average /oʊ/ in Figure 17 is similar to that of Meikle Meecham in the degree of openness, in that both the glides start at a position slightly less open than the /æ/ control point. The starting point of Meikle Meecham's /oʊ/ is

more open than Gary's if also the /aː/ control point is taken into account. If the relative degree of openness of the starting points of the /oʊ/ and /aʊ/ glides is compared, Gary's /oʊ/ appears less broad than Meikle Meecham's. The relative broadness of Gary's vs. Heath Sandercock's /oʊ/ in the data is ambiguous: in Table 11, the starting points of Gary's /oʊ/ are half-open whereas those of Heath Sandercock are half-close and therefore, less broad; in Figure 17, on the other hand, the starting point of Gary's /oʊ/ is less open than the starting point of his /aʊ/ glide or his /æ/ control point, whereas in Heath Sandercock, the starting point of the /oʊ/ glide is more open than either his /æ/ or the starting point of his /aʊ/.

In Figure 17, Meikle Meecham's and Heath Sandercock's /aʊ/ glides have more front and close starting points than Gary's average /aʊ/ glide. On the other hand, Gary's average /aʊ/ is broader than Lew Lethlein's. The same is true in Table 11.

Summing up, the only male speaker of *Coffee Break*, Gary, is in /aɪ/ and /aʊ/ less broad than the male speakers of *Down Under*, except for Lew Lethlein's /aʊ/; in /ɛɪ/ he is equal in broadness to Heath Sandercock. In /ɪi/ and /oʊ/, Gary is less broad than Lew Lethlein and Meikle Meecham, and about equally broad or slightly broader than Heath Sandercock. In other words, he is overall the least broad male speaker in the data. In each of the diphthongs studied, the average quality of the *Down Under* male speakers is broader than the average quality of the only male speaker of *Coffee Break*, Gary.

4.2.3.2 Comparison across genders

When the diphthongs of the two genders are considered together across the two language course materials, the broadest diphthongs in the present data occur in the male speakers of *Down Under*. The speaker of *Coffee Break* who nearly equals the broadest speakers of *Down Under* in broadness is Bronwyn.

The movement of Bronwyn's average /ɪi/ in Figure 16 is situated lower in the front region than that of any of the male speakers, even when the reservations made in connection with Figure 19 (Chapter x.x) are taken into account. This is reflected also in the auditorily evaluations of the quality of /ɪi/ in Table 11: Bronwyn's diphthongs begin with a vowel quality around the front half-close area while the average starting point of most of the other speakers would be around the front close centralized [ɪ]. Only Meikle Meecham's /ɪi/ diphthongs in Table 11 regularly begin with a central vowel

quality [ə]; in Figure 16, they have the widest horizontal movement. In relation to Meikle Meecham's /ɪ/, his /ɪi/ onglide is less open than in Bronwyn, but as was noted above in the beginning of Chapter 4, Meikle Meecham's /ɪ/ may be more open than Bronwyn's. One of the factors possibly contributing to Bronwyn's vowel quality is the fact that the average duration of her /ɪi/ diphthong tokens in the data is longer than that of the other speakers – excepting Leslie Oldfield whose /ɪi/ quality in Table 11 is also quite broad (for durations, see Appendix 3). Leslie Oldfield's /ɪi/ qualities in Table 11 are broader than those of Gary, who has got a central starting point only in postlateral environment.

As was reported above, in the diphthong /ɛɪ/ in the present data, the speakers of *Coffee Break* are broader than the female speakers of *Down Under*, Gary is broader than the female speakers of *Coffee Break*, and the male speakers of *Down Under* are broader than Gary. This is the diphthong where the gender difference is the clearest in the present data.

In the diphthong /aɪ/, Bronwyn's average in Figure 16 is similar to that of Meikle Meecham; also in Table 11, their vowel quality and degree of rounding is similar. Gary has got slightly less rounding than Bronwyn and Meikle Meecham; Leslie Oldfield and Pauline have got about the same starting point as Bronwyn and Meikle Meecham but no rounding. Gillian Meecham's is the only average /aɪ/ in Figure 16 with a starting point more front than the average /a:/ of the same speaker – and the /a:/ of her vowel system is already a relatively front one. The same can be seen in her auditorily perceived vowel quality: her [a̤ɪ] and [aɪ] qualities are more fronted than those of any other speaker.

In the diphthong /ʊu/, some tendencies can be seen. First, /ʊu/ is usually not a diphthong in the closed-syllable alveolar environment of the data. The exception is the oldest speaker, Lew Lethlein, whose average /ʊu/ has a slight, backing glide in Figure 17. Therefore, if broadness would be indicated by the amount of glide, Lew Lethlein would have the broadest /ʊu/ and the others would all be equally non-broad. Second, there is no significant variation in the degree of openness of the starting point of /ʊu/ in the data in Table 11, even though the openness of the starting point is among the most important indicators of broadness of /ʊu/ in Figure 6 and Table 5 above. Third, in the present data, the position of /ʊu/ on the vowel chart is generally extremely fronted.

If the broadness of /ʊu/ in Figure 17 would be estimated on the basis of the degree of fronting, Gillian and Meikle Meecham, Bronwyn and Gary would be broader than Heath Sandercock and Pauline. Leslie Oldfield's /ʊu/ qualities are not among the most fronted either. This difference, however, is not observable in the auditory data of Table 11.

In the diphthong /oʊ/, there are some differences in Table 11 although they are small and partly contradictory with the measurements of Figure 17. Table 11 and Figure 17 agree on Lew Lethlein's having the broadest qualities, on Bronwyn's relatively broad qualities and on Gillian Meecham's relatively Cultivated qualities. The greatest differences between Table 11 and Figure 17 lie in the results of Heath Sandercock, whose starting point qualities in Table 11 are the most close but in Figure 17, among the four most open, and in the results of Leslie Oldfield and Pauline, whose average starting points in Figure 17 are among the closest but whose /oʊ/ qualities in Table 11 are among the broadest. If the broadness of /oʊ/ is estimated by comparing the F1 values of the starting points of /oʊ/ and /aʊ/, the two most Cultivated /oʊ/ averages are in Gillian Meecham and Pauline, the next is Leslie Oldfield, then Gary, then Heath Sandercock, Meikle Meecham and Bronwyn, and finally the broadest one, Lew Lethlein.

In the diphthong /aʊ/, the variation is larger than in /ʊu/ and /oʊ/. The diphthongs of Meikle Meecham and Heath Sandercock are clearly broader than those of the others both in Figure 17 and in Table 11. The next in broadness in Table 11 are Bronwyn and Gary whose backward glides in Figure 17 start beyond the F2 of their /æ/ and relatively near the F2 of their /ɪ/. Also Lew Lethlein's backward glide of /aʊ/ in Figure 17 starts beyond the F2 of his /æ/, whereas the movement of Leslie Oldfield's and Pauline's /aʊ/ glides is situated clearly behind their /æ/ region. In Table 11, however, the audible quality of Lew Lethlein's tokens is on an average slightly less broad than that of Leslie Oldfield and Pauline, even though the difference is very slight. One possible explanation is the backness of his /æ/ in comparison with that of Leslie Oldfield and Pauline. The most Cultivated /aʊ/ in the data is that of Gillian Meecham, more clearly so in Table 11 than in Figure 17, although even in Figures 16 and 17, she is the only speaker whose /aɪ/ and /aʊ/ glides almost do not cross.

In Appendix 3, the average diphthong durations of Bronwyn are in all of the diphthongs measured among the longest in the data whereas Gillian Meecham's durations are in several cases (/ɛɪ/, /aɪ/, and /oʊ/) the

shortest ones. In /εɪ/ and /aɪ/, Bronwyn's durations are about twice as long as Gillian Meecham's. On the basis of the data from Gillian Meecham and Bronwyn, it might be suggested that duration could have some correlation with broadness, although in the rest of the data, the correlation is not as clear.

Summing up, in /εɪ/, /aɪ/ and /au/, the speakers of *Coffee Break* use broader diphthong qualities than the female speakers of *Down Under*, but the male speakers of *Down Under* use on an average broader diphthong qualities than the *Coffee Break* speakers. In /ɪi/ and /ou/, the phonetic differences are smaller and the gender difference is less prominent than in /εɪ/, /aɪ/ and /au/: Bronwyn of *Coffee Break* is broader than most other speakers, except perhaps Meikle Meecham of *Down Under*, but Gary of *Coffee Break*, on the other hand, is less broad than Leslie Oldfield of *Down Under*.

If, on the basis of Figure 22, some kind of average diphthong quality is estimated for each of the language course materials, the average qualities for each material would not be far apart. In each of the diphthongs, *Coffee Break* speakers cluster around the middle of the continuum and speakers of *Down Under* have got both broader and less indigenous average qualities.

4.2.3.3 Regularity of variation

Above, the speakers were organized according to the broadness of their diphthongs. In the following, the regularity of variation will be considered.

In Table 11, there is fluctuation in the diphthong tokens of every speaker in both of the materials. Most of it can be attributed to the variable length of the tokens which is not unconnected with the variable amount of stress. The longest tokens tend to have a clearer pronunciation than the shortest ones, which in the case of Bronwyn's and Leslie Oldfield's /ou/ means more rounding (LO 52, B 53); the long tokens also tend to have a wider movement of vowel quality and sometimes a very broad pronunciation like the longest /εɪ/ tokens of Meikle Meecham and Lew Lethlein (MM 22, LL 21, 22). The shortest tokens tend to be monophthongal or nearly monophthongal like the shortest /ɪi/ tokens of Pauline and Lew Lethlein (P 13, LL 12, 13), the shortest /uu/ token of Lew Lethlein (LL 43), and the shortest /aɪ/ token in the data (P 33). If the short tokens have got a second element, it may be reduced like in the shortest /ou/ tokens of Meikle and Gillian Meecham and Pauline (GM 52, MM 53, P 51); also the first element may be reduced like in Gary's short /εɪ/ (G 21), which was included in the data because of the sparseness of his alveolar environments

even though reduced tokens were generally avoided in the selection of data (see above, Chapter 3.4.2).

Another reason for the fluctuation is phonetic environment, which was discussed above in Chapter 4.2.1. The most obvious cases of environmental effect on diphthong quality in Table 11 are Bronwyn's open-syllable /ʊu/ (B_41) and Gary's postlateral /ɪi/ (G 11). Other tokens which can be interpreted as influenced by the environment include Pauline's exceptional, possibly open-syllable /ʊu/ token discussed above in Chapter 4.2.2, the slightly backed tokens in the environment of a preceding retroflex of Heath Sandercock's /ɛɪ/ (HS 22) and Leslie Oldfield's and Heath Sandercock's /ʊu/ (LO 41, HS 43), and Pauline's and Gary's tokens in palatoalveolar environment: her /ɪi/ token (P 13) and his /oʊ/ token (G 51) which precede an affricate [tʃ] and his /ɛɪ/ token (G 23) which is preceded by [tʃ].

There is fluctuation in Table 11 which cannot be attributed to length or phonetic environment: Gillian Meecham has got a deviant /aɪ/ token (GM 31), which has a less fronted quality [ɑ·e] and is auditorily similar to Leslie Oldfield's /aɪ/, contrasting with her other, extremely fronted tokens. This token will be discussed below in Chapter 5. Other fluctuation not attributable to length or phonetic environment includes the variation of Pauline's and Leslie Oldfield's /ɪi/ in unreduced nonretroflex environment (P 11 and 12, LO 11 and 13) and the slightly more backed quality of Meikle Meecham's third /ʊu/ token (MM 43). Also, on the basis of Figure 22, the amount of broadness of Heath Sandercock's diphthongs seems to vary a lot: in the hierarchy of broadness, he is situated among the most Cultivated in /ɪi/ and /oʊ/ but among the least Cultivated in /aɪ/ and /aʊ/.

5 ANALYSIS

In the following, the results presented above in Chapter 4 will be considered in light of the theories and previous study reviewed above in Chapter 2. The correlation of the diphthong variation with several extralinguistic variables in the present data will be analyzed, starting with social variables and regional variables, and finally, stylistic variables.

5.1 Social variables

Of the social variables, gender will be considered first.

5.1.1 Gender

In Chapter 2.1.1 above, it was reported that gender is the main social variable correlating with diphthong variation in Australian English (Horvath 1985:174, Horvath and Sankoff 1987:198-201). In previous study, Cultivated diphthongs correlate with female gender, Broad diphthongs with male gender (Horvath 1985:76-79, Mitchell and Delbridge 1965:32). This tendency follows the general variationist finding that high-prestige or overt-prestige variants correlate with female gender, low-prestige or covert prestige variants with male gender (Horvath 1985:40).

When the results in Chapter 4 above are reviewed from the point of view of gender variation, both in Figure 15 and in Figure 22, the broadest quality of each diphthong is produced by a male speaker (Lew Lethlein, Heath Sandercock or Meikle Meecham) and the most Cultivated quality by a woman (in this case, it is always Gillian Meecham), even though in /ɪi/, the most Cultivated quality is shared by Heath Sandercock.

According to Figures 15 and 22, the gender variation in the present data is the clearest in the diphthongs /ɛɪ/, /aɪ/, and /aʊ/, where male speakers group at the Broad half of the continuum and female speakers at the Cultivated half, with few exceptions. These same diphthongs /ɛɪ/, /aɪ/, and /aʊ/ are the ones with the widest variation in the phonetic quality of the diphthong. In the diphthongs /ɪi/ and /oʊ/, the two genders are not equally clearly distinguished.

In each of the diphthongs under study, Bronwyn of *Coffee Break* is the broadest female speaker of the data, often equalling male speakers in broadness: in Figure 15, she is broader than Heath Sandercock; in Figure 22, she is broader than Gary in /aɪ/, /ɪi/, and /oʊ/, she is broader than Lew Lethlein in /aʊ/ and /ɪi/, and she is broader than Heath Sandercock in /ɪi/ and

/oʊ/; in /ɪi/, only Meikle Meecham is broader than she, in /oʊ/, only Lew Lethlein. The order of broadness of the male speakers varies, but Gary is overall the least broad male speaker of the data; his qualities, however, are in none of the diphthongs very far removed from the other male speakers.

When the two language course materials are compared, the gender distinction is wider in *Coffee Break* than in *Down Under*. In Figure 15, Gillian Meecham's average /ɛɪ/ is more Cultivated than Pauline's one and Meikle Meecham's and Lew Lethlein's /ɛɪ/ averages are slightly broader than Gary's. Also the average counted on the basis of Figure 15 for the female speakers of *Down Under* (2.8) is clearly less broad than the *Coffee Break* female average (3.9) and the average for the male speakers of *Down Under* (5.0) is broader than *Coffee Break* Gary's average (4.9), although the difference between the male averages is not great.

Also in Figure 22, the gender difference is wider in *Down Under* than in *Coffee Break*: the most Cultivated speaker of the data is a female speaker of *Down Under* and the broadest speaker of the data is one of the male speakers of *Down Under*. The broadest female speaker of the data and the least broad male speaker of the data are both found in *Coffee Break*. The total variance in *Coffee Break* is smaller than in *Down Under* and the largest dimension in the variation of *Coffee Break* diphthongs is not gender variation because the broadest *Coffee Break* speaker in Figure 22 is not Gary but Bronwyn.

Both in Figure 15 and in Figure 22, the most striking gender difference of the data is the one between Gillian and Meikle Meecham of *Down Under*, who are husband and wife, share the same place of living in the countryside, run their sheep station together, therefore sharing the same social class position on the Congalton Scale (cf. Figure 8 above), and are interviewed together, therefore sharing the same situational variables: the main difference in their extralinguistic variables seems to be gender, but her diphthongs are the most Cultivated in the data and his, among the broadest.

5.1.2 Socioeconomic class

In Chapter 2.1.2 above, it was reported that the use of Broad diphthongs correlates with lower working class and the use of Cultivated diphthongs with middle class (Horvath 1985:85). Using the Congalton Scale, speakers can be classified into different social classes according to their occupation (Congalton and Daniel 1976:100). Besides occupation, also the amount of social ambition

can be used to characterize a speaker's social status (Cameron and Coates 1988:18, Douglas-Cowie 1978: 48-51).

In the men of *Down Under*, Lew Lethlein has got a manual job ("next door to slavery", as he himself characterizes the work of a miner at the time when he started) and broad diphthong qualities both in Figure 15 and in Figure 22, with the exception of his /aʊ/. However, also the other male speakers of *Down Under* use broad diphthong qualities, even though their social classifications in Figure 8 are higher up in the social hierarchy. Consequently, the difference between the lower-working-class Lew Lethlein and the lower-middle-class Heath Sandercock is not as extreme as their social categorization leads one to expect: in Figures 15 and 22, Lew Lethlein is broader than Heath Sandercock in /ɛɪ/, /ɪi/, and /oʊ/, but Lew Lethlein's average of the diphthong /aʊ/ is remarkably non-broad. The variation between Heath Sandercock and Meikle Meecham appears more systematic, even though both of them might be classified lower middle class: in Figures 15 and 22, Meikle Meecham is broader than Heath Sandercock in /ɛɪ/, /aʊ/, /ɪi/, and /oʊ/. In /aɪ/, the male speaker with the highest social ranking in the data, Heath Sandercock, is the broadest speaker but in that diphthong, the variation between the male speakers of *Down Under* is minimal.

According to Figures 15 and 22 above, the variation in the diphthongs of the women of *Down Under* correlates with the social variables, but inversely: the upper-middle-class Leslie Oldfield has in every diphthong broader averages than the lower-middle-class or upper-working-class Gillian Meecham.

In the women of *Coffee Break*, the social difference is not very clear: judging from their present occupation, Pauline is probably lower middle class and Bronwyn, her subordinate, is either upper working class or lower middle class. The social class difference of the women of *Coffee Break* is reduced by the fact that Bronwyn is a trained nurse, which is clearly lower middle class, and she has worked as such for fifteen years, having become a clerk only some months previously. A difference may exist in their social ambition: in her hopes for the future, Pauline lists new occupational and educational challenges whereas Bronwyn's ambitions are connected with her family; on the basis of the Coffee Break Chat, the importance of work for Bronwyn seems to lie in the social contacts. The occupations of their parents might be regarded as giving further confirmation to the difference in their social ambition as Pauline comes from a lower-middle-class home whereas Bronwyn's parents are clearly working class. In every diphthong variable in Figures 15 and 22, Bronwyn's

average is broader than Pauline's, so their diphthong qualities might be said to correlate with social variables.

Between Gary of *Coffee Break* and Heath Sandercock of *Down Under*, broadness does not correlate with social class in the expected way: Heath Sandercock is clearly ranked higher on the scale of occupational prestige, but in Figure 22, his average diphthong qualities are broader than Gary's in /aɪ/, /aʊ/, and /oʊ/.

5.1.3 Age

Above in Chapter 2.1.3, it was reported that besides gender and social class, also age differences correlate with Australian English diphthong quality in previous study. In Horvath's Sydney study (1985), teenagers use less extreme variants of the closing diphthongs than adult speakers: girls use less Cultivated diphthongs than women and in boys, the proportion of both Cultivated and Broad variants is smaller than in men. Consequently, the proportion of General diphthongs is bigger in the teenage group than in the adult group. (Horvath 1985: 79-92.)

When the age variation in Horvath's Sydney study is considered separately for each social group, there is a move towards General diphthongs both in middle class and lower working class in apparent time: middle-class teenagers use less Cultivated diphthongs than middle-class adults, and lower-working-class teenagers use less Broad diphthongs than lower-working-class adults. In upper working class, which in the adult group has the largest proportion of General diphthongs, the direction of the movement in apparent time is the opposite, away from the General diphthongs. (Horvath 1985: 81-92.)

The fact that the youngest speakers of the data, Gary of *Coffee Break*, does not use extremely Broad diphthongs according to Figures 15 and 22 fits in well with the age pattern found in Horvath's study, except that he is an upper-working-class speaker and should therefore not follow the general pattern.

The fact that Lew Lethlein, the oldest speaker of the data, is among the broadest in the data also agrees with the above age pattern. In Figures 15 and 22, he is among the two broadest speakers in /ɛɪ/, /aɪ/, and /oʊ/; in /ɪi/, he is still the third broadest together with Leslie Oldfield. Only his /aʊ/ is very deviant from his broad qualities: in Table 11, his average /aʊ/ clusters with the qualities of Leslie Oldfield and Pauline in the more Cultivated end of the cline rather than with the men of *Down Under* in the broadest end of the continuum.

According to Horvath (1985), /aʊ/ is presently undergoing a change in Australian English (Horvath 1985:94,176). This could mean that Lew Lethlein's deviant /aʊ/ quality might be a remnant from earlier times. Strictly speaking, the change indicated by Horvath is in a different direction: younger speakers, especially second generation immigrants, move away from the Broad end of the /aʊ/ continuum because of the strong stigma attributed to the Ethnic Broad variant used by first generation immigrants (Horvath 1985:94,176). According to Labov (1972:178–181), however, a change from above like this is a later stage of a sound change. Therefore, /aʊ/ has possibly been unstable in Australian English for a longer period of time and the direction of change may have been different before.

One reason why sound change appears a plausible explanation for Lew Lethlein's exceptional /aʊ/ is the fact that also in his speech, there are broad variants like [ɛǫ], [ɛɑ̟], [ɛǫ], and [ɛ̃o], which resemble Meikle Meecham's [ɛɒ], [ɛɑ], and [ɛɐ] in Table 11: Lew Lehtlein's broad /aʊ/ variants occur in the prenasal environment discussed above in Chapter 4.2.1 (see Appendix 4). Even though the F2 of the starting point of Lew Lethlein's prenasal /aʊ/ glide does not appear as fronted as Heath Sandercock's and Meikle Meecham's, the starting point is more raised and thus broader than in Heath Sandercock's non-prenasal /aʊ/ (see above, Figures 17 and 18).

5.2 Region

In Chapter 2.2 above, it was reported that regional differences exist in the area of vowels but they are blurred by social and gender variation, which correlate with the same variables (Horvath 1985:19, Guy 1991: 219-220). The regional differences between the capital cities are much less prominent in Australia than the social and stylistic variation according to the degree of broadness within each city (Bradley 1989: 260-261).

According to previous study, /æ/ is extremely raised in Melbourne and slightly raised in Sydney (Bradley 1989:265). In the present data, this agrees with the relative closeness of Bronwyn's and Pauline's /æ/ vowels. In previous study, /ɪ/ has got the most fronted variety in Melbourne and the least front variety in Sydney (Bradley 1989:265). This does not agree with Pauline's relatively front qualities of the vowel /ɪ/ in the present data. Of course, on Western Australia or the Northern Territory, there are no studies available.

Diphthongal variation tends towards the more Cultivated end of the continua in Melbourne and is slightly broader in Sydney (Bradley 1989:262).

According to Mitchell and Delbridge (1965: 39,44), speakers from the smaller centres tend to have broader accents than speakers from the capital cities. At the Cultivated end of the diphthong continua, Mitchell and Delbridge (1965) and Horvath (1985) seem to disagree, Mitchell and Delbridge (1965) claiming that in the countryside, female speakers use broader diphthongs than in the city (Mitchell and Delbridge 1965: 19, 31-44), and Horvath (1985) claiming that in Sydney, Cultivated qualities are disappearing (Horvath 1985:79). On the other hand, Mitchell and Delbridge (1965) and Horvath (1985) are talking about two different generations (Mitchell and Delbridge 1965:1; Horvath 1985: 43, 47, 90). In the older generation, the results of Mitchell and Delbridge (1965) might apply, but in centres where there are a lot of immigrants, like in Sydney, the younger generation might be taking part in the change started by immigrants and described by Horvath (1985). If there are more immigrants in Sydney than in the countryside, the change in progress described by Horvath (1985) would be more advanced in Sydney.

When the results presented in Chapter 4 above are reviewed from the point of view of regional variation, the relative lack of broadness of the young Sydney speaker, Gary, in Figures 15 and 22 fits in well with the previous study on regional variation: he comes from the city while the male speakers of *Down Under* with their broader diphthongs come from the countryside. Furthermore, Gary comes from Sydney where the change in progress towards the more central qualities is the most advanced, especially in younger speakers like Gary.

When the great difference in diphthong quality between Gillian and Meikle Meecham in Figures 15 and 22 is revisited from the point of view of country vs. city distinction, the difference correlates with the different origins of the Meechams: even though, at the moment of the interview, both have been living in the countryside for over twenty years, Gillian grew up "in the city", which probably means Perth, whereas Meikle Meecham grew up on an isolated sheep farm two hundred miles inland from Carnarvon. According to Mitchell and Delbridge (1965: 19, 31-44), the tendency for country people to have broader diphthongs than citydwellers is especially marked in female speakers. Therefore, the very Cultivated diphthong qualities of Gillian Meecham must stand out in the country environment.

The difference between the diphthongs of Leslie Oldfield and Gillian Meecham is also remarkable. On the axis of city vs. countryside, the women of *Down Under* have a lot in common: both grew up in a big city and moved to the countryside only as adults. In their attitudes towards city and countryside,

however, there is a difference: in the interview, Gillian Meecham underlines the fact that she 'originally came from the city up to the bush twenty-odd years ago' and speaks proudly of her friends in the city but Leslie Oldfield displays a feeling of belonging to the countryside when she says that 'most people up here have accepted me and I've become part of the community. And... I guess they'd call me a Territorian now'.

5.3 Style

In Chapter 2.3 above, theories of stylistic variation were presented. In the following, the results presented in Chapter 4 will be reviewed in the light of these theories.

5.3.1 Formal and informal style

According to Labov (1966a:405; 1972:240) (see above, Chapter 2.3.1), high-prestige variants like Cultivated diphthongs correlate with formal style and low-prestige variants like Broad diphthongs with informal style. The problem in applying Labov's theory in the study of the present data is the fact that his theory was designed for data obtained in controlled situations. Therefore, the criteria that he gives for distinguishing between formal and informal style or careful and casual speech are relatively hazy if applied to the study of other kinds of data. His criteria only include the so-called channel cues (laughter, change in pitch, volume, rate of speech or rate of breathing) which should occur outside the interview proper, or emphatically stressed words in personal narratives. To elicit casual speech, he sometimes uses emotional topics or group discussion with peers. (Labov 1966a: 101-108; 1994:158.)

When Labov's criteria are applied to the present data, the Coffee Break Chat might represent group discussion with peers. Emotional topics or emphatically stressed words in personal narratives can be found at least in Lew Lethlein (danger of death situation), and Bronwyn (when she talks about her children). Laughter and change in pitch and speech rate occur in the interview with Bronwyn. In all these contexts, relatively broad diphthongs occur but there are also other extralinguistic variables in these pieces of data so that it is not possible to say what is the effect of style.

Finegan and Biber (1994: 320-326), reviewed above in Chapter 2.3.2, offer criteria that are easier to apply to natural data. In Chapter 3.2.1 above, these criteria were applied in the comparison of the two language course materials under study, with the result that the style of *Coffee Break* appears slightly more involved than the style of *Down Under*. If Finegan and Biber's

dimension of involved vs. informational production is considered similar enough to Labov's continuum of informal vs. formal style for the purposes of the present study (see discussion above in Chapter 2.3.2), then *Coffee Break* would be slightly less formal in style than *Down Under*.

According to Labov's (1966a:405; 1972:240) theory, in the case that the style of *Coffee Break* should be slightly less formal than the style of *Down Under*, speakers with similar social characteristics should use on an average broader qualities of diphthongs in *Coffee Break* than in *Down Under*. One of the problems of Labov's approach with this kind of data is that Labov designed his theory for quantitative study with large number of speakers. In small data like this, idiolectal variation might override the general tendencies.

Another problem is the fact that there are no speakers with exactly the same social characteristics in the two materials. The nearest social equals according to Figure 8 in Chapter 3.3.1 above would be Gillian Meecham of *Down Under* and either Pauline or Bronwyn of *Coffee Break*. Of these women, Pauline is lower middle class, Gillian Meecham and Bronwyn either lower middle class or upper working class.

On the scale of occupational prestige, Gillian Meecham and Pauline are near equals. However, there are other differences in their extralinguistic variables besides the fact that they were recorded in different situations: a possible ten years' difference in age and the fact that Gillian Meecham lives in the countryside and Pauline in Sydney; both the women spent their childhood in a city. In Figures 15 and 22 above, Gillian Meecham is in every diphthong more Cultivated than Pauline. The difference is even greater between Gillian Meecham and Bronwyn, who is the broadest female speaker in the present data.

In the male speakers of *Down Under*, the nearest social equal of the *Coffee Break* Gary would be either Meikle Meecham or Lew Lethlein. According to the Congalton scale (Figure 8), Gary is upper working class whereas Lew Lethlein of *Down Under* is lower working class if classified as a miner. The sheep farmer Meikle Meecham is at the border of lower middle class and upper working class and therefore nearest to Gary's sociological classification.

Besides the situational variables, other differences in the extralinguistic variables of Gary and Meikle Meecham include an age difference of at least ten years and a vast difference in the dimension city vs. countryside: Gary was born and bred in Sydney whereas Meikle's family has lived for many generations "in the bush", on sheep stations far away from the cities. The extralinguistic

variables of Lew Lethlein, other than situational variables, differ from Gary's ones in that Lew Lehtlein is situated lower on the scale of social prestige, Lew Lehtlein lives in the countryside and the ages of Gary and Lew Lehtlein are extreme, as Gary is the youngest and Lew Lehtlein the oldest speaker in the data - Lew Lehtlein could well be Gary's grandfather.

In Figures 15 and 22 above, Gary is on an average less broad than either Meikle Meecham or Lew Lethlein. In other words, in speakers of corresponding social position, more Cultivated diphthongs are found in *Down Under* in the women of the data but not in the male speakers. In the pairs of near social equals, many other extralinguistic variables are involved besides the situational ones, not to mention idiolectal variation. Therefore, stylistic variation cannot be distinguished from other variation in small data like this. Labov's theory of stylistic variation is better suited for controlled situations or a large number of speakers.

According to previous study reported in 2.3.1, female speakers, especially lower-middle-class female speakers, are more prone to style-shifting than male speakers. In their style-shifting, lower-middle-class women can go to the point of hypercorrection, which includes excessive stylistic variation even surpassing upper-middle-class speakers in the use of high-prestige variants, conscious striving for correctness, great fluctuation within a stylistic context, and strongly negative attitudes towards their native speech pattern.

In the present data, there are three women who might be classified lower middle class on the basis of their occupations: Gillian Meecham, Pauline, and Bronwyn. Out of these three speakers, Bronwyn definitely is not hypercorrect, as she is the broadest female speaker of the data. Gillian Meecham, on the other hand, seems to fulfill many of the characteristics of a hypercorrect speaker: she is more Cultivated than the upper-middle-class speaker, Leslie Oldfield, and she uses diphthong qualities that Mitchell and Delbridge list as "affected". Conscious striving for correctness might be an explanation for her special prenasal /æ/ described above in Chapter 4.2.1: in Meikle Meecham, Heath Sandercock, Lew Lethlein, and perhaps Gary and Bronwyn, prenasal /æ/ is raised, a tendency indicated by Oasa (1989:286). In Gillian Meecham, however, the prenasal /æ/ is lowered rather than raised. Strongly negative attitudes towards the native speech pattern might be displayed by her possible divergence which will be discussed below in Chapter 5.3.3. Possible fluctuation in her speech will be discussed next.

According to Labov (1972), sociolinguistic variation is more regular in the vernacular than in more conscious speech styles (Labov 1972:117,208-209). In the present data, fluctuation in the phonetic quality of diphthong tokens in Table 11 correlates mainly with the variable amount of stress and variable length of the tokens and with the phonetic environment. Some fluctuation not attributable to length or phonetic environment does exist in Table 11 in both the materials. In the auditory analysis of stressed-syllable /ɛɪ/, a general impression was obtained that Bronwyn's phonetic qualities were clearer and easier to transcribe than the ones of the female speakers of *Down Under*. No definite conclusions can be drawn concerning the stylistic difference between the materials because of the smallness of the data in Table 11 and the small number of emphatic /ɛɪ/ tokens in the speakers of *Coffee Break*, especially in Bronwyn and Gary.

Fluctuation in the speech of Gillian Meecham occurs at least in the diphthong /aɪ/: she has got a deviant /aɪ/ token (GM 31), which might be connected with style-shift because it occurs in a more relaxed athmosphere than the other tokens. The less fronted quality [ɑ·e], auditorily similar to Leslie Oldfield's /aɪ/ and in contrast with her other, extremely fronted tokens, occurs in the word *outside* in an environment where Seppo Korhonen makes her a question about cooperation in the family enterprise: "Mike's the boss?" Both his voice and Gillian's have a joking tone and she answers, "Mike's the boss," adding after a short break: "Of the outside. I'm the boss of the inside." According to Labov's theory of attention paid to speech, this could be a point where emotions catch her attention and break the hypercorrection otherwise typical of her speech. Or, from the point of view of status and solidarity, the genre of joking might be linked with the use of solidarity features like broad diphthongs. This fluctuation gives further support to the view that her diphthong qualities are hypercorrect.

5.3.2 Markers and indicators

In Chapter 2.3.5 above, the criteria given in Trudgill (1986:6-11) for distinguishing between markers and indicators was applied to the study of Australian English closing diphthongs with the result that the diphthongs /ɛɪ/, /au/, and /aɪ/ stood out as markers. This means that /ɛɪ/, /au/, and /aɪ/ should undergo stylistic variation while the indicators /ɪi/ and /ou/ should only undergo social variation.

When the results of Chapter 4 are reviewed from the point of view of the distinction between the markers /ɛɪ/, /aʊ/, and /aɪ/ and the indicators /ɪi/ and /oʊ/, some differences can be observed between these two groups: first, in the indicators, Heath Sandercock, Gary, and Pauline are less broad in relation to the other speakers than in the markers. In the theory of Labov (1972) and Trudgill (1974, 1986), indicators undergo social variation (Labov 1972:178-180,314; Trudgill 1974:98; 1986:10); in the case of Heath Sandercock and Pauline, their diphthong qualities correlate more closely with their social position in the indicators than in the markers: on the Congalton scale of occupational prestige, they are ranked the second and the third highest and in the indicators, they are on an average among the three most Cultivated speakers.

Second, in the markers, the gender distinction in the present data is clearer than in the indicators. In the present data, stylistic variation between formal and informal style could not be distinguished from other variation. Consequently, it cannot be said whether the markers of the present data undergo stylistic variation, except that the fluctuation linked with a style shift in Gillian Meecham was connected with the diphthong /aɪ/, one of the markers. Instead of stylistic variation, markers would seem to undergo wider gender variation than indicators in the present data. If women style-shift more than men (Labov 1972:243), it is not out of question that the wider gender variation in markers should be related with stylistic factors.

Third difference between the indicators and the markers in the present data is that Bronwyn is broader in the indicators than in the markers. Bronwyn's ranking in the indicators in Figure 22 does not seem to correlate with her social characteristics. On the other hand, her less broad quality in markers helps to maintain the gender distinction. When markers and indicators are considered separately, Bronwyn is in the indicators /ɪi/ and /oʊ/ about equally broad as Meikle Meecham and Lew Lehtlein of *Down Under* and clearly broader than Gary of *Coffee Break*, but in the markers, she is less broad than the male speakers of *Down Under* and about equally broad as Gary.

Fourth, in the markers, the distinction between the two materials is clearer than in the indicators. In the markers, the Coffee Break speakers are clustered in a smaller area around the center of the continuum of diphthong qualities used in the materials, but in the indicators, their qualities are more widely scattered in relation to the total variation of the material.

5.3.3 Accomodation, divergence, and foreigner talk

From the point of view of stylistic variation, the extreme diphthong qualities of Gillian and Meikle Meecham might be influenced by each other, because the Meechams are interviewed together: her very Cultivated diphthongs might be a divergent reaction to his very broad diphthong qualities, of which she might disapprove in the context of a radio interview (Giles 1973:90; Bourhis and Giles 1977:128-129; Bell 1984:186-187; Giles and al. 1991b:27). A further possibility is that her Cultivated diphthong qualities feature accomodation to Seppo Korhonen's less Australian diphthongs (Thakerar and al. 1982:248), or that they represent foreigner talk, the amount and nature of which varies from speaker to speaker (Ellis 1995:252-253; Ferguson and DeBose 1977:105-106; Zuengler 1991:234-238). From the interview, it would appear that Seppo Korhonen has perhaps prepared his questions more for the husband than for the wife and that he sometimes has difficulty in rapidly formulating questions for Gillian. In the example of Appendix 2, the amount of pauses and lack of fluency in Gillian's third answer might be interpreted as foreigner talk (giving the interviewer time for interpretation or looking for words that would be easier to understand) or as accomodation (maybe as a sign of politeness or cooperation) to the dysfluency of Seppo Korhonen's first and third question. These factors might affect her diphthongs as well.

The view that Gillian Meecham's extremely Cultivated diphtongs might be connected with stylistic variation gains support from her deviant, less Cultivated, token of /aɪ/, which occurs when she is joking.

5.3.4 Attitudes towards diphthong variation

In Chapter 2.3.6 above, studies about Australian attitudes towards diphthong variation were reviewed. When the broad diphthong qualities of the male speakers of *Down Under* are considered from this point of view, they are seen by some Australians as crude, by others as unaffected and earthy, indicating friendliness, solidarity, humorousness, talkativeness, self-confidence, and masculinity (Guy 1991:224; Berechree and Ball 1979 reported in Guy 1991:224; Seggie and al. 1982:349–350; Ball and al. 1989:94). The Cultivated diphthong qualities of Gillian Meecham bear a lot of overt prestige and they are in previous study associated with status, prestige, privilege, and intelligence. Teachers would rank pupils with this kind of accent high on verbal ability, success as a student, and self-confidence. (Seggie and al. 1982:349–350; Berechree and Ball 1979 reported in Ball and al. 1989:94; Eltis 1989:106–107.)

Some Australians, however, would perceive her speech as socially unattractive, artificial, and affected (Berechree and Ball 1979 reported in Ball and al. 1989:94; Eagleson 1989:156; Baker 1966:455).

From the point of view of attitudinal studies, the relatively broad diphthongs of a female politician like Leslie Oldfield are interesting. On the scale of occupational prestige, she is ranked higher than any other speaker in the data, but her diphthongs are not more Cultivated than those of the other female speakers; only the male speakers and Bronwyn use broader diphthongs than she. In the interview, it is clear that in Australia, it is exceptional for a woman to be a mayor; from this point of view, her diphthongs might express masculinity and self-confidence. During the half-an-hour interview, she tells that her origin is not in the outback but in Britain and she expresses a wish to be regarded as a Territorian; from this point of view, her diphthongs might express solidarity and association with the Australian outback reference group (Horvath 1985:175-176).

According to attitudinal studies, a broad female speaker like Bronwyn would be ranked very low on the scale of competence, and she is also ranked low on the scale of femininity (Berechree and Ball 1979 and Guy and Vonwiller 1984 reported in Guy 1991:224). From the point of view of covert prestige, however, many Australians would perceive her diphthongs as unaffected and earthy, and associate them with solidarity and friendliness. (Guy 1991:224; Berechree and Ball 1979 reported in Guy 1991:224; Seggie and al. 1982:349–350; Ball and al. 1989:94.) In the interview, she stands out as a person making decisions on the basis of her heart more than on the basis of social aspirations: she has got ten children, four of her own, four fostered and two adopted; she is a trained nurse but wanted a daytime job because she worried too much about the patients and because of her children. This background information agrees with the picture of solidarity and friendliness conveyed by her diphthongs.

Compared with Bronwyn, Pauline's diphthongs are more Cultivated and therefore associated with competence and status (Berechree and Ball 1979 and Guy and Vonwiller 1984 reported in Guy 1991:224). This agrees with her social aspirations and with her holding a responsible position at work. According to attitudinal studies, male speakers using Cultivated diphthongs are ranked very low on the scale of perceived self-confidence (Berechree and Ball 1979 reported in Guy 1991:224). Gary's diphthongs are not Cultivated, but they are the least

broad in the male speakers of the data. At least, his diphthongs are not extremely masculine since he is on an average less broad than Bronwyn.

Summing up, when all the diphthong qualities of the two materials are considered, the variation is wider in *Down Under* than in *Coffee Break*. This is due to the fact that in *Down Under*, there is Gillian Meecham who uses very Cultivated diphthong qualities and the male speakers of *Down Under* use very broad diphthong qualities. On the basis of previous study, Gillian Meecham could be considered a prototypical example of a hypercorrect lower-middle-class female speaker and the male speakers of *Down Under* are prototypical examples of men living in the countryside. In addition, Lew Lethlein is an example of an old lower-working-class speaker. In *Coffee Break*, the diphthong qualities are less extreme. The male speaker of *Coffee Break*, Gary, could be considered a prototypical example of a young Sydneysider as he uses diphthong qualities in the middle of the diphthong continuum. There are two female speakers in *Coffee Break* who could be classified lower middle class but they do not use as hypercorrect diphthong qualities as Gillian Meecham. Pauline's diphthong quality correlates with her social position and her gender in the same way as in previous study. Bronwyn, however, is a counterexample in every way: very broad for a female speaker, especially for a female speaker living in a capital city and possibly lower middle class, she represents idiosyncratic variation.

6 DISCUSSION

In the following, the results presented and analyzed above will be compared with previous study and discussed as to their restrictions in the light of the limits of the data and the methodology used. From the point of view of the results of the present study, previous study will be commented on and suggestions for further research will be presented. First, some restrictions of the phonetic methodology used will be discussed.

Because the data consists of authentic speech and not of studio recordings of isolated words or sentences, which are usual in formant measurements (cf. Bernard 1970. 1989; Burgess 1969), the acoustic measurement of the diphthongs is complicated by background noise, nasal formants, and nasal antiformants. Nevertheless, should the study of diphthong quality be restricted only to studio data, most of the stylistic variation would remain unstudied.

Because the speakers were selected on the basis of their social characteristics, the data does not consist solely of low-pitched men with clear articulation whose formants are easy to read (cf. Bernard 1970. 1989; Burgess 1969) but also of women, who have a higher basic frequency, and of an old man (Lew Lethlein) whose pitch is not particularly low either and whose articulation is quite mumbling in places, possibly because of dialectal speech style or of changes due to age: false teeth etc. Nevertheless, Lew Lethlein was included because he is a retired miner and thus adds to the social variety of speakers. Without the female speakers, the gender variable would have been left out, even though it is the most important sociolinguistic variable in Australian English besides ethnicity, and also an important part of stylistic variation would have been lost. To be able to read the formants of the high-pitched speakers, the bandwidth and darkness of the spectrograms had to be varied according to the pitch height and voice quality of each speaker and of the word in question.

Auditory analysis of vowel quality was used in order to counteract the deficiencies of acoustic measurement. As was already emphasized above in Chapter 3.5.2, hearing and transcribing phonetic qualities is necessarily subjective and the most probably affected by the transcriber's mother tongue. As can be seen from Table 11, the phonetic transcriptions of previous study (see Tables 4 and 5 in Chapters 1.2 and 1.3 above) were the most readily applicable in the present data to the diphthongs /ɪi/, /ɛɪ/, /aɪ/, and /aʊ/. As according to Oasa (1989), the diphthongs /ʊu/ and /oʊ/ vary greatly

according to the phonetic environment, the great discrepancy between Tables 5 and 11 in these diphthongs may be partly due to the effect of the alveolar environment of the present data, as the difference in the amount of frontness can be seen also in the measurements of Figure 17 compared with Bernard's measurements in Figure 4. Part of the discrepancy of Tables 5 and 11 is certainly due to the subjectivity of phonetic transcription and to the effect of the transcriber's mother tongue.

The part of the vowel chart which appears the most problematic in Australian English are the low central vowels where the usage of phonetic symbols varies because of the change in progress in the phonemes /æ/ and /ɑ:/. In this area, also the International Phonetic Alphabet appears insufficient because no official symbol exists for the fully open unrounded central vowel. The essential for the present study, however, are not the exact phonetic qualities but the differences between the speakers and between the two materials. In the present study, the subjectivity of phonetic script is counterbalanced by acoustic measurement and the two analyses render broadly the same results.

The small size of the material available of each speaker, especially of the speakers of *Coffee Break*, makes if often impossible to find three stressed-syllable tokens of each diphthong in the ideal environment of alveolar obstruents. The amount of stress on the tokens in the data varies somewhat, which is seen in the shortness and reduced quality of some tokens; therefore, in the comparisons between the speakers, there was an attempt to take the differences in the duration of tokens into account. Deviant phonetic environments with the most effect on vowel quality include a preceding retroflex or lateral, an adjacent palatoalveolar, the syllable-final position of /ʊu/ and the prenasal position of /aʊ/. As the environments often were not ideal and as the tokens in less-than-ideal environments were in the actual analysis discarded, the sample of three tokens proved insufficient.

Further study would be needed on the effect of the phonetic environment on Australian English diphthong quality: none of the previous studies mentions the strong effect of a following nasal on the quality of /aʊ/, but especially in the speech of Lew Lethlein, the effect is obvious. Furthermore, the amount of the effect of the phonetic environment on diphthong quality seems to vary from speaker to speaker: to name a few examples from the data of stressed-syllable /ɛɪ/ analyzed auditorily (see above, Figure 14), a preceding retroflex seems to broaden the /ɛɪ/ quality of Heath Sandercock and a preceding lateral has a strong effect on the /ɛɪ/ quality of Lew Lethlein, whereas in the other

speakers, the effect of a preceding retroflex or an alveolar is less prominent. In previous study, both Wells (1982:603) and Trudgill and Hannah (1982:18) suggest that the Australian English /1/ is dark also prevocalically, and according to Wells, it might be pharyngealized rather than velarized. This seems to be a good description of Lew Lethlein's /1/. Is it possible that also the amount of pharyngealization varies sociolinguistically? Another interesting topic for further study would be the variation in the degree of broadness according to lexical items.

In Mitchell and Delbridge (1965: 34-35, 83), one of the criteria for distinguishing between General and Broad diphthongs is the lengthening of the first element of the diphthong. In the present study, this criterion was used very sparingly, mainly in the diphthong /aɪ/. In the results in Table 8, lengthened first element occurred also in the audible quality of other diphthongs, for example in the diphthong /ɛɪ/, but the problem with this criterion is that sometimes it is in contradiction with the criterion of starting point quality. Therefore, the criterion of lengthening of the first element was applied only when it was not in contradiction with starting point quality, that is, with the broadest starting point qualities.

Mitchell and Delbridge (1965: 34-35, 83) link drawling and slow speech rate with broadness. Wells (1982:593) says that Australian country speech is slower and broader than the pronunciation in big cities. If durations of diphthongs tell anything about the speech rate, then Bronwyn's average durations are in all of the diphthongs measured among the longest in the data. The average durations of the most Cultivated speaker of the data, Gillian Meecham, on the other hand, are in several diphthongs the shortest ones in the data: in /ɛɪ/ and /aɪ/, they are only half of Bronwyn's durations. In the rest of the speakers, the correlation between duration of diphthongs and their broadness is not equally clear, though. On the basis of the present data, correlation between broadness and diphthong duration would be one possible area for further study.

Of the six diphthongs under study, the variation of /ʊu/ is the least consistent in the present data. Part of the inconsistency can be due to the fact that the diphthong /ʊu/ in alveolar environment is so rare that it is difficult in the present data to find enough tokens for each speaker. Therefore, less than ideal environments have to be included: open syllable, unclear environment, a preceding retroflex. These environments can bias the results. If these tokens are excluded, the data are, strictly speaking, insufficient. Possibly because of the

closed-syllable alveolar environment, the position of /ʊu/ on the vowel chart is in the present data generally more fronted than even in Bernard's (1970, 1989) measurements (cf. above, Figures 3 and 4), where the tokens were followed but not preceded by an alveolar.

In the present data, no stylistic or gender variation of /ʊu/ was observed. Even though some social variation of /ʊu/ according to the degree of fronting proposed by Bernard (1970) is observable in the formant frequencies, it is not confirmed by the auditory analysis. Therefore, no social variation of /ʊu/ can be said to exist in the present data: if the difference cannot be heard, how could it be socially meaningful? Of course one could argue that Australians may hear it, but it has not been proved; Bernard's (1970, 1989) proposal is based only on the formant frequencies. Therefore, further study would be needed in order to find out whether the difference between Broad and Cultivated Australian English /ʊu/ indicated by Bernard is audible and whether there is any audible social variation in the Australian English diphthong /ʊu/ in the alveolar environment. The Mitchell and Delbridge (1965:9-10) study introducing the variation of /ʊu/ was not restricted to the alveolar environment only: also postlateral, word-final environments (as in the word *flew*) were included. Mitchell and Delbridge did not treat the word-final environment separately from the prealveolar one (as in the word *boot*) (cf. Mitchell and Delbridge 1965:82).

The observed sociolinguistic variation in the quality of /oʊ/ in the data is also relatively small and the chain shift of /ʊu/, /oʊ/, and /aʊ/ indicated by Wells (1982) is far from plain evident in the alveolar environment of the present data. One reason for the lack of clarity in the variation of /oʊ/ is the fact that many of the words where /oʊ/ occurs in an alveolar or near-alveolar environment in the data, like *don't*, *no no that's*, *no doubt*, *so that*, and *you know, just*, are relatively redundant and therefore prone to be reduced; it seems that in these words, /oʊ/ can be replaced by schwa without hindering communication. If more data were available for each speaker, redundant words could be avoided and more content words where the phoneme is distinctive and cannot be replaced by schwa (as in the word *toaster*) could be included in the data.

Especially in the case of /oʊ/ and /aʊ/, the formant movements of different speakers are often difficult to compare despite the four-vowel framework of /ɪ/, /æ/, /aː/, and /ɔː/ because, as a result of sociolinguistic and other variation also in the vowels of the frame, each

speaker's frame has a different shape. For example, the comparison of Lew Lethlein's and Bronwyn's /aʊ/ diphthongs in Figure 17 is complicated: in both the speakers, the starting point of the backward glide of the average /aʊ/ is situated forward of the average /æ/, in Lew Lethlein more so than in Bronwyn; in neither speaker does the F2 of average /aʊ/ surpass the F2 of the same speaker's average /ɪ/. However, since Bronwyn's /aʊ/ values in Table 11 are much broader than Lew Lethlein's, the significant difference in Figure 17 must be the fact that in Bronwyn, the starting point of the backward glide of /aʊ/ is closer than in Lew Lethlein and the fact that Lew Lethlein's /æ/ has a relatively back quality. Also Pauline's and Gillian Meecham's average /oʊ/ diphthongs are difficult to compare in Figure 17: the starting point of the /oʊ/ glide is closer in Pauline than in Gillian Meecham when its F1 is compared with the F1 values of the average /ɪ/ and /aː/ of the same speaker, but Pauline's vowel system has a peculiar flat shape and in Table 11, Gillian Meecham's starting point qualities are closer than Pauline's.

The larger sample of all stressed-syllable /ɛɪ/ tokens was analyzed in order to discover possible bias in the smaller sample. The results are mostly alike: when each language course material is considered separately, the order of speakers on the scale of broadness is similar in both samples. Nevertheless, on the basis of the phonetic qualities of the larger sample of /ɛɪ/, Leslie Oldfield's and Bronwyn's smaller sample of /ɛɪ/ appears biassed towards the more Cultivated end of their repertoire of /ɛɪ/ qualities. In the smaller sample analyzed both acoustically and auditorily, Heath Sandercock's /ɛɪ/ is clearly broader than Bronwyn's, but in the larger sample analyzed auditorily, Bronwyn is broader than Heath Sandercock. The order of Leslie Oldfield and Pauline is also different in the two samples: in the smaller sample, Pauline is broader than Leslie Oldfield, whereas in the larger one, Leslie Oldfield is clearly broader than Pauline. The small size of the samples analyzed both acoustically and auditorily and their possible unrepresentativeness are also counterbalanced by the fact that the results are drawn on the basis of all the diphthongs together, especially on the basis of the markers /ɛɪ/, /aɪ/, and /aʊ/, where the differences are the largest.

Despite the above limits of the method, consistent variation is found between the speakers in the data. The order of broadness of the female speakers is consistent in all the diphthongs in the data, if for /ɛɪ/, the larger data are considered; the order of Meikle Meecham and Gary is also consistent for all the diphthongs, as well as the order of Lew Lethlein and Gary, except in /aʊ/. Of

the six diphthongs under study, the sociolinguistic and stylistic variation is the greatest in the variables /ɛɪ/, /aɪ/, and /aʊ/, which according to Trudgill's (1986) criteria are markers in Australian English (see above, Chapter 2.3.5). For these diphthongs, differences between the speakers are clear not only in the auditory analysis but also in the acoustic measurements. In the following, the results of the analysis in Chapter 5 will be reviewed and discussed.

Many of the theories of sociolinguistic variation presented in Chapter 2 and used in the analysis of the data in Chapter 5 are designed for quantitative study with a great number of speakers. In the present study, because of the small size of the present data, these theories were used in a different way: they were applied only when relevant. In Chapter 5, in connection with each extralinguistic variable, examples were offered of the prototypical cases in the present data, or of cases which are otherwise interesting from the point of view of previous study: counterexamples, cases where the theory does not explain the variation, examples of idiosyncratic variation. The aim has not been to change the theory but to understand the variation in the present data. In the following, the speakers under study will be reviewed one by one from the point of view of how the theories have helped in understanding the variation in their diphthongs.

In *Down Under*, all the speakers selected for the present study live in the countryside in different parts of Australia. **Lew Lethlein** is an old miner and he describes the life of a miner 50 years ago as "next door to s[ɫʌɪ]very[1]". He is very near to the prototype dialectological informant - old rural working-class man - except that we do not know if he was born in the area. His diphthongs are very extreme, with strong contextual effect of the surrounding laterals and nasals. One example of the effect of the phonetic environment is the pronunciation of his name [ɫəʊ lɛθɫein] and the way he gives the spelling: [ɛɫei tʰɹiæɪtʃ ɛɫei ɒɪ ɛn].

From the point of view of previous study, Lew Lethlein's diphthongs are a prototypical example of variation according to gender, social class, age, and region: masculine gender, lower-working-class occupation, and living in the countryside all correlate with Broad diphthong quality and in previous study, extreme diphthong qualities are found in older speakers rather than young ones. The only exception to his broadness is the diphthong /aʊ/, which in his speech is broad only prenasally.

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[1]slavery

Also **Heath Sandercock** works in a mine, but he is an engineer and younger than Lew Lethlein. His social status is higher than Lew Lethlein's and his indicators are not very broad, but his markers are still relatively broad. From the point of view of previous study, his diphthong quality correlates in the expected way with the extralinguistic variables of gender and region: masculine gender and living in the countryside correlate with Broad diphthong quality. In the indicators /ɪi/ and /oʊ/, his diphthong quality correlates with social class.

Meikle Meecham, already from the spelling of his name, gives a very Australian impression. He is a fifth-generation sheep farmer who grew up on a secluded sheep station on the outback. His diphthongs appear very broad and masculine, especially since he is interviewed with his wife, whose diphthongs are the opposite in every way. His life style appears at the same time very hard working and very relaxed. When the interview touches the subject of taxation, he displays some anti-authoritative attitudes, which belong to the stereotype of the outback people.

From the point of view of previous study, his diphthong quality correlates in the expected way with the extralinguistic variables of gender and region: masculine gender and living in the countryside correlate with Broad diphthong quality. His relatively high position on the Congalton scale of occupational prestige does not correlate with his diphthong quality. This fact adds to the anti-authoritative impression given by his attitudes on taxation.

Gillian Meecham is in many ways the opposite of Meikle Meecham when it comes to her diphthongs: they sound very feminine, very polished, even affected. From her diphthongs, you could never imagine that she is married to a sheep stationer and lives in the countryside: the diphthongs of country women are usually much broader. In the interview, she emphasizes the fact that she "origin[æli:]² ... came from the cit[i:]³ ... up to the bush↗ twenty-odd years ago↗" (a comment where she uses very polished /ɪi/ vowels plus the High-Rise Tone, a very feminine feature characteristic of Australian English). This comment together with the very Cultivated quality of her diphthongs leads one to think that she still considers herself a city person.

From the point of view of previous study, Gillian Meecham's extremely Cultivated diphtong qualities are very interesting. They correlate with her gender in the way that would be expected on the basis of previous study but

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²originally
³city

they do not correlate with her social class or her place of living: her diphthongs are more Cultivated than those of the upper-middle-class speaker, Leslie Oldfield, and in previous study, women living in the countryside generally use broader diphthong qualities. From the point of view of previous study on stylistic variation, her diphthong qualities could be seen as a prototypical example of lower-middle-class female hypercorrection, a view to which the hypercorrect quality of her prenasal /æ/ and the occurrence of a less Cultivated /aɪ/ diphthong in a joke lend support. From this point of view, it would be interesting to hear the diphthong qualities she uses when she talks to her children. On the basis of previous study, her extremely Cultivated qualities could also be interpreted as divergence from the very broad qualities of her husband, accommodation to the non-Australian qualities of the interviewer, or foreigner talk.

The fifth speaker of *Down Under* included in the present study is **Leslie Oldfield**, the mayor of Alice Springs, who is in an exceptionally [hɒ·ɪ][4] position for an Australian woman. Her diphthongs are clearly Australian despite the fact that she was born in Britain and only moved to Australia at the age of six. She emphasizes the fact that many people would consider her a Territorian now, even though she came to Alice Springs less than twenty years ago. She is a politician and for her career in Alice Springs, it is obviously advantageous that she should be considered an Australian and a Territorian. Moreover, as a mayor, she holds a position that in Australia was traditionally occupied by men. In her work, she cooperates with many different groups of people, for instance, she needs to be in good relations with aboriginal leaders. From her speech, you get the impression that she is a "good fellow": easy to associate with, down to earth, with strong ties to the community; her diphthongs sound very broad for a woman, although she does not speak as broadly as Bronwyn. From the European point of view, it is difficult to believe that she is a mayor when you hear her diphthongs: they sound so Cockney.

From the point of view of previous study, Leslie Oldfield's diphthongs are not prototypical: as well for a female speaker as for an upper-middle-class speaker, her diphthongs are relatively broad. Her regional background is so diverse that on the basis of previous study, it is difficult to say whether she is prototypical or not from the point of view of regional variation. On the basis of previous study on language attitudes, as a politician, she might profit from her

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[4]high

relatively broad diphthongs in that they are associated with solidarity and self-confidence. As a politician, she probably also profits from sounding Australian and Territorian.

In *Coffee Break*, all the speakers are Sydneysiders working in a large public hospital. There is **Pauline**, a clerk in supervisory position, with clear plans for the development of her career. She does not use very extreme diphthongs but she is less broad than the others in *Coffee Break*. From the point of view of previous study, her being less broad than the others fits in well with her social position and her career plans (social variation). Her diphthong qualities also correlate with her gender in the expected way.

There is **Gary**, a younger clerk who has just started working in the hospital. He is the youngest and the least broad of the male speakers of the data and the only city-dweller among them. His diphthong qualities cluster around the middle of the diphthong continua, which, from the point of view of previous study makes him a prototypical young Sydneysider (age and region). From the point of view of previous study on gender and social class variation, his diphthong qualities are not prototypical.

Finally, there is **Bronwyn**, whose diphthong qualities are very far from anything expected on the basis of previous study. The variable where she deviates the most from previous study on Australian English closing diphthongs is gender: she is a very broad-accented woman with ten children who considers the social contacs at the workplace more important than creating a splendid career. She is a trained nurse, but she currently works as a clerk, because as a nurse she started worrying too much about the patients and because she had to work night shift, which was difficult for the family. Just like Leslie Oldfield, also Bronwyn sounds very down to earth, realistic and group-oriented because of her diphthongs. Bronwyn's speech sounds slightly slower than that of the other speakers, which makes it even broader. From the point of view of previous study, Bronwyn presents idiosyncratic variation. From the point of view of previous study on language attitudes, her broad diphthongs could be associated with solidarity and friendliness.

In Chapter 2.3.5 above, the criteria given by Trudgill (1986:6-11) for distinguishing between indicators, the variables which undergo social variation, and markers, the variables which undergo also stylistic variation, was applied to the study of Australian English closing diphthongs with the result that the diphthongs /ɛɪ/, /aɪ/, and /aʊ/ stood out as markers whereas /ɪi/ and /oʊ/ are indicators. In the present data, markers and indicators behaved

differently at least in some speakers: markers seem to correlate more with gender than with stylistic variables, although, since women in previous study style-shift more than men (Labov 1972:176,243-244), the gender variation may not be unconnected with stylistic variation. On the basis of the present data, therefore, it is not possible to say whether the difference between /ɛɪ/, /aɪ/, and /aʊ/, on the one hand, and /ɪi/ and /oʊ/, on the other, is the one described by Trudgill (1986:10). This would be an interesting topic for further study: how would the sociolinguistic and stylistic variation of the markers /ɛɪ/, /aɪ/, and /aʊ/ differ from that of the indicators /ɪi/ and /oʊ/ in a large corpora of data or in a controlled situation with the same speakers using different styles?

Regional variation is an area very little covered in the study of Australian English. On the regional variation in the degree of broadness of the closing diphthongs, there are many short possibly contradictory notes in the literature: according to Mitchell and Delbridge (1965:31-44), diphthongs are broader in the countryside than in the capital cities, especially in female speakers; according to Bradley (1989:262), there is variation between the capital cities in the overall degree of broadness: diphthongs tend towards the more Cultivated end of the continuum in Melbourne and towards the broader end in Brisbane, Sydney falling in between the two; according to Horvath (1985:79), there is a language change in progress in Sydney towards the center of the diphthong continuum and the change was started by immigrants; this would imply that the change is the most advanced in capital cities with a lot of immigrants.

One way of interpreting the variation in the present data would be that regional variation between the capital cities and the countryside is very important in the variation of Australian English closing diphthongs: the speakers of *Coffee Break* all come from Sydney and their diphthong qualities do not cover an equally wide range as in the speakers of *Down Under* in the data, who all come from outside the capital cities. If there is a change in progress in Sydney towards the more midway variants, the difference between the two materials could be regional variation. However, the change in progress is only attested in previous study in the age group of Gary, not in older speakers like Pauline and Bronwyn. The fact that reports on regional variation in previous study are possibly contradictory indicates that to really understand regional variation of the closing diphthongs between city and countryside, a larger study with more data would be needed.

In the application of Labov's (1966a, 1972) theory on formal vs. informal style in the present data, there were many problems: first, Labov does not give practical criteria for distinguishing between formal and informal styles in natural data because his theory is designed for controlled interview situations. Finegan and Biber (1994:321-325) offer criteria that are easier to apply but it is possible that they do not speak about exactly the same stylistic dimension as Labov (1972:99-208). In Chapter 3.3.1 above, the Finegan and Biber (1994) criteria were applied to a comparison of the styles of the two language course materials under study. In this comparison, each material was treated as a stylistically homogenous entity which may not be realistic. For example in *Down Under*, there is on the one hand Lew Lethlein who fulfills some of Labov's (1966a:101-108) criteria for casual style describing a danger-of-death situation and uses broad diphthongs; on the other hand, there is Gillian Meecham, who is very hypercorrect, which refers to formal style. In *Coffee Break*, there is Bronwyn who talks about emotional topics and uses broad diphthongs; in her interview, there is laughter and sudden change in pitch (cf. Labov 1966a:101-110). Nevertheless, it is possible that Lew Lethlein and Bronwyn use broad diphthongs also in formal style.

Even though Finegan and Biber's (1994) criteria would be supposed to tell something about Labov's (1972) styles as well, isolating possible stylistic variation between the materials is difficult in the present data because the speakers who are the nearest social equals in the two materials have also other extralinguistic differences correlating with their diphthong quality besides style.

Summing up, in *Down Under*, a wider range of diphthong qualities is used than in *Coffee Break*. In *Coffee Break*, the diphthongs are clustered around the middle of the continuum. On the basis of Mitchell and Delbridge (1965) and Horvath (1985), some of the difference between the materials at the Broad end of the continuum can be due to regional variation: *Down Under* men live in the countryside and use Broad diphthongs, the only male speaker of *Coffee Break* is a young Sydneysider who uses General diphthongs. In *Down Under*, there is a very Cultivated female speaker, who is possibly hypercorrect; in *Coffee Break*, there is a very Broad female speaker, whose diphthongs are not prototypical of the diphthong variation reported in previous study.

Generalizing broadly on the basis of the results reported above, *Down Under* seems to present more exotic diphthongs than *Coffee Break*: abundance of male speakers, country people and the old miner point in this direction. Broad diphthongs seem to make the language exotic and interesting. A

72-year-old toothless miner and fifth-generation sheep farmer straight from the bush are interviewees exeptional enough to catch the attention of a radio listener and make him/her interested in Australian English. The miner's diphthongs are almost impossible to understand and so are those of the sheep farmer! Situated exactly at the other end of the diphthong continua, the over-neat diphthongs of the sheep farmer's wife with city origin form a sharp contrast to the broadness of the husband's diphthongs and emphasize their broadness. A female mayor in the middle of the desert is also something of an attention-catcher, a bit like tabloid headlines, even though her diphthongs do not come from either end of the continua. The same exoticness of topics is repeated in the parts of the *Down Under* series not covered in the present study: a prince, a cameleer, an Aboriginal radio station, the School of the Air, the Flying Doctor Service, to name but a few. The weird diphthongs are a tourist attraction!

Consistent with the fact that the target group of *Coffee Break* are immigrants, most of whom live in the cities, *Coffee Break* presents more urban diphthongs than *Down Under* as all the interviewees are Sydneysiders. At the Broad end of the diphthong continuum, the urban nature of the diphthongs of *Coffee Break* may be part of the explanation why the diphthongs of *Coffee Break* are less extreme in quality than those of *Down Under*: According to Horvath (1985), the diphthongs of young Sydney speakers are situated nearer the middle of the continua than diphthongs outside the big cities because in the urban diphthongs, there is a change in progress which was actually started by immigrants. At the Cultivated end of the diphthong continuum, part of the explanation for why the diphthongs of *Coffee Break* are less extreme in quality than those of *Down Under* is the lack of an extremely hypercorrect speaker in *Coffee Break*. Whether the lack is due to a stylistic difference between the materials is not known. Clerical workers of a large Sydney hospital do not feature in tabloid headlines but they speak the urban average everyday language that an immigrant needs.

CONCLUSION

The aim of the present study was to understand the variation of Australian English closing diphthongs in two language course materials and to study what the sociolinguistic, regional, and stylistic variation described in previous study looks like in these materials. The theoretical background of the present study consists of the sociolinguistic approach to sociolinguistic, regional, and stylistic variation, auditory and acoustic phonetics, and previous study of the Australian English closing diphthongs and vowel system.

In Chapter 1 above, previous study of Australian English closing diphthongs was reviewed. From previous study of Australian English pronunciation, the closing diphthongs /ɪi/, /ʊu/, /ɛɪ/, /oʊ/, /aɪ/, and /aʊ/ (as in the words *deed, toot, date, toast, site, doubt*) emerge as the central sociolinguistic variables within Australian English, as well as central differentiating characteristic *vis-à-vis* British English pronunciation. In previous study of Australian English closing diphthongs, the continuum of diphthong quality from high-prestige to low-prestige variants is often divided in three and labelled Cultivated, General, and Broad, respectively. In Chapter 1, the phonetic variants of the Australian English closing diphthongs and variation in the Australian English vowel system in general was reviewed as presented in previous study.

In Chapter 2, previous study on the correlation between extralinguistic variables and variation in Australian English diphthong quality was reviewed. The following variables were considered: social variation, including gender, socioeconomic class and age, regional variation, and stylistic variation. Because Australian English studies on the stylistic variation of closing diphthongs are few and far between, also some general theories of stylistic variation were reviewed, among others, Trudgill's (1986) criteria for distinguishing between indicators and markers. In Chapter 2.3.5, Trudgill's criteria were applied to Australian English closing diphthongs, and the diphthongs /ɛɪ/, /aɪ/, and /aʊ/ (as in *date, site,* and *doubt*) emerged as the strongest markers among them, which would mean that these diphthongs undergo both social and stylistic variation.

In Chapter 3, the data and the research design of the present study were introduced. The language course materials under study are *Coffee break: a course in understanding authentic Australian casual conversation* (hereafter *Coffee Break*) produced by Dorothy Economou and the New South Wales

Adult Migrant Education Service and intended for people immigrating to or living in Australia whose mother tongue is not English; and *Down under: talking about Australia and New Zealand* (hereafter *Down Under*) produced by the Finnish Broadcasting Company (YLE) and designed for advanced learners of English in Finland. The two materials are thus intended for two groups of students with different motivation for learning to understand Australian English: the target group of *Coffee Break* is going to live in the country whereas the target group of *Down Under* will probably need to understand Australian English only when watching tv or visiting Australia as tourists. The present study aimed to answer the questions what the variation of the diphthongs in the two materials is like, how the variation differs between the two materials, what the sociolinguistic, regional and stylistic variation described in previous study looks like in these materials and what kind of diphthongs each of the speakers produces.

In Chapter 3.3.3, the principles for the selection of speakers for the data were presented. For closer examination of the diphthongs of the two language course materials, a sample of eight speakers was selected: five out of the more than twenty interviewees in *Down Under* and three out of the four interviewees in *Coffee Break*. For each of the programs, the sample of speakers was designed to include both men and women, because apart from ethnicity, gender is the main social variable correlating with diphthong quality in Australian English (see above, Chapter 2). Both of the samples were also designed to include as wide a range of social backgrounds as possible. The scope of the present study was narrowed to exclude immigrant and Aboriginal English, even though there are some examples of these kinds of English in the language course materials, because the speakers have not enough in common for their diphthongs to be considered together, the only common feature being 'ethnic', as distinct from white non-immigrant Australian. Because immigration is characteristic to Australia and ethnicity appears to be playing a major part in the present development of Australian English closing diphthongs, ethnicity should be the subject of a further study.

In Chapter 3.4, the analysis procedures were introduced. In the speech of each of the eight speakers, three alveolar-environment non-redundant stressed-syllable tokens of each of the six closing diphthongs were analyzed by the present author both auditorily and acoustically by measuring the frequencies of the two lowest formants. Because of variation in the entire Australian English vowel system and for the sake of normalization between the speakers, a

four-vowel frame was measured acoustically for each of the eight speakers. In order to see if the smaller sample of diphthongs was representative, all the occurences of the diphthong /ɛɪ/ in stressed syllable in the speech of the eight speakers were evaluated auditorily for their quality (see above, Chapter 3.4.3).

In Chapter 4, the results obtained through the analysis procedures introduced in Chapter 3.4 were presented and the diphthong qualities of the speakers were organized according to their degree of broadness using the criteria given in previous study reported in Chapter 1. In Chapter 5, the results presented in Chapter 4 were analyzed using the theories and previous study presented in Chapter 2. In Chapter 6, the results and analysis presented in Chapters 4 and 5 were discussed in more depth.

According to the results, the averages of the different speakers' diphthong qualities are almost the same in the two materials but the variation between the speakers is wider in *Down Under* than in *Coffee Break*. When the correlation of the diphthong qualities with the extralinguistic variables presented in previous study is considered, the gender variation is wider in *Down Under*: the women of *Down Under* have less broad diphthongs than the women of *Coffee Break* but the men of *Down Under* have broader diphthong qualities than the only male speaker of *Coffee Break*. Variation according to gender is especially clear in the markers.

When variation according to socioeconomic class and age is considered, Lew Lethlein of *Down Under* stands out as a stereotypic example of an old lower-working-class speaker and the diphthong quality of Pauline correlates with her social position in the same way as in previous study. In Heath Sandercock of *Down Under*, the diphthong quality correlates with social position only in the indicators.

When it comes to regional variation, Gary of *Coffee Break* with his General diphthong qualities is a stereotypical example of a young Sydney speaker and the male speakers of *Down Under* are stereotypical examples of male speakers living in the countryside.

When it comes to stylistic variation, Gillian Meecham of *Down Under* with her extremely Cultivated diphthong quality is a stereotypical example of lower-middle-class female hypercorrection; other possible interpretations of her diphthong quality include foreigner talk, accomodation to the non-Australian diphthongs of the Finnish interviewer, or divergence from the very broad diphthongs of her husband Meikle Meecham who is interviewed at the same time.

In addition to stereotypical examples of sociolinguistic, regional, and stylistic variation, there were examples of idiosyncratic variation in the data, speakers whose diphthongs do not correlate with extralinguistic variables in any way reported in previous study. Bronwyn of Coffee Break is one of them: even though she is a female speaker, could be classified as lower middle class and lives in a capital city, her diphthongs are very broad, in many cases equally broad or broader than those of the male speakers of the data. According to previous study of Australian attitudes to diphthong variation, diphthong qualities such as hers are perceived as unaffected and earthy and associated with solidarity and friendliness, which agrees with the opinions she presents in the interview.

Another speaker whose diphthongs do not correlate with extralinguistic variables in any way reported in previous study is Leslie Oldfield of Down Under, the mayor of Alice Springs. For a woman in such a high position, she uses very broad diphthongs. As a politician, she probably profits from the fact that according to previous study, her diphthongs are perceived as expressing masculinity and self-confidence. At the level of attitudes, her broad diphthongs also express association with the Australian outback reference group despite her city origins and British parents.

One area where the application of the results of previous study did not succeed was variation between formal and informal style by Labov (1972). First, the criteria given by Labov is not meant for the study of natural data but for controlled situations. Second, the criteria given by Finegan and Biber (1994) is easier to apply to natural data but might not refer to the same dimension of variation. Third, in case there were a different in the styles of the two language course materials, speakers with corresponding social position were difficult to find in the two materials. Fourth, Labov's theory is made for quantitative study and in the present data, it is only possible to present individual cases which illustrate the theory either as stereotypical examples or as counterexamples.

Generalizing broadly on the basis of the above results, *Down Under* seems to present more exotic diphthongs than *Coffee Break*: instead of rendering the language too hard for the tourist to understand, broad diphthongs seem to make it exotic and interesting. As a series of radio programmes, *Down Under* needs to catch the attention of the occasional radio listener and make them interested in Australian English. Also the topics of the programmes point in this way: a 72-year-old toothless miner, a fifth-generation sheep farmer straight from the bush, a female mayor in the middle of the desert, a prince, a

cameleer, an Aboriginal radio station, the School of the Air, and the Flying Doctor Service.

Consistent with the fact that the target group of *Coffee Break* are immigrants, most of whom live in the cities, *Coffee Break* presents more urban diphthongs than *Down Under* as all the interviewees are Sydneysiders. Clerical workers of a large Sydney hospital do not feature in tabloid headlines but they speak the urban average everyday language that an immigrant needs. The non-extreme diphthongs of *Coffee Break* are not exotic but they are realistic.

Even though the aim of the present study was only understanding the variation in the data and not testing the theories against the data, the present study raised some questions that could be the subject of a further study. For instance, when the diphthong qualities were estimated auditorily and acoustically, a lot of variation of vowel quality according to phonetic environment was encountered which was not sufficiently touched on in previous study, notably variation of the diphthong /aʊ/ before a nasal or the strong effect of a preceding lateral on diphthong quality. Also correlation between diphthong broadness and diphthong duration would be a subject for further study.

In the present study, Trudgill's (1986) criteria for distinguishing between markers and indicators were applied to the study of Australian English closing diphthongs. In the results, markers and indicators behaved differently but it is not clear if the difference is the one indicated by Trudgill (1986). This would be an interesting area for further study: how would the sociolinguistic and stylistic variation of the markers /ɛɪ/, /aɪ/, and /aʊ/ differ from that of the indicators /ɪi/ and /oʊ/ in a large corpora of data or in a controlled situation with the same speakers using different styles?

One area little covered in the study of Australian English is regional variation between countryside and the capital cities. On this subject, only short notes are found in the literature which are hard to interpret without making them at least partly contradictory; in the present data, the distinction between city and countryside raised several questions and possible explanations for the variation.

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Appendix 1

MAP OF AUSTRALIA
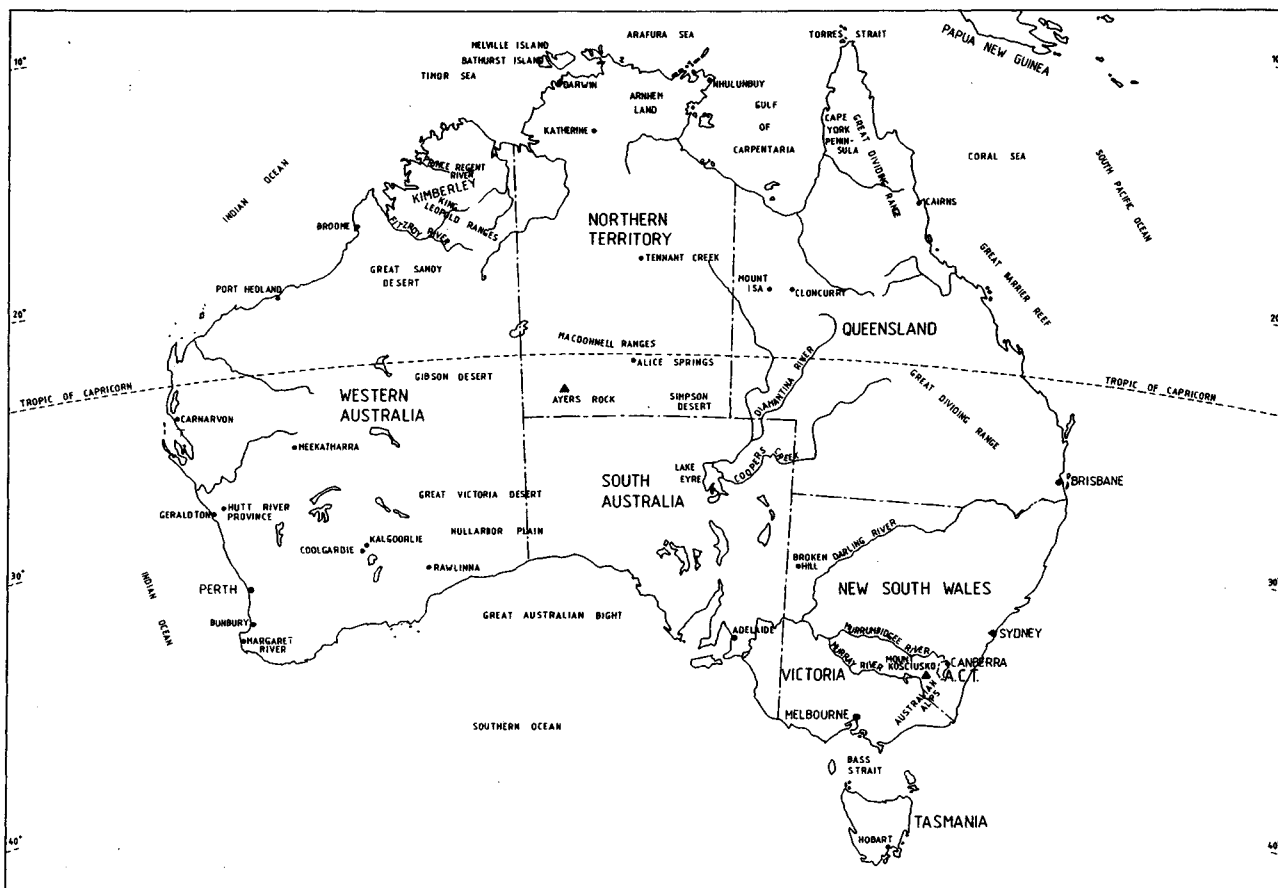
(Aho and al. 1988:5.)

Appendix 2

EXAMPLES OF THE TRANSCRIPTIONS OF THE MATERIAL

Down under

Interview with Meikle and Gillian Meecham

(SK = Seppo Korhonen, GM = Gillian Meecham, MM = Meikle Meecham)

SK: Well, what do YOU do in the... in the mustering s- mustering and shearing season? What are what are your jobs?

GM: I'm usually <counting> to getting on to a motorbike at some stage through muster to help out and we just started about 4.30, had breakfast at 4.30 in the morning, leave here, particularly for getting up the top end thirty miles up and we start from there, under the directions of the boss over here.

SK: And Mike's the boss?

GM: Mike's the boss. Of the outside. I'm the boss of the inside.

SK: And... what else? What does your your working day look like?

GM: Well, normally it's... <primally> involved in... meal times I suppose, because being a small property, the staff that we have... are always around for breakfast, lunch and dinner, and the... the – what shall I call it? – smoker, we call it anyway, <it is> morning and afternoon tea and most of the guys like the smokers, so... There's five meals a day, virtually, that you're getting through, and also the house, as you can see, are very large. They need a fair bit of attention. The gardening, watering. And we also have a tourist... set-up where we have seven little chalets that... people rent out. It's a very well-known fishing... coastline and they come... there... or come here mainly for that purpose. And so I'm usually the lady who with the help of a girl, who I usually have, to paint them out at the beginning of each season, pretty them out a bit and then clean them out ready for the people who've looked a cottage. And that keeps my day fairly busy.

SK: Which are, which are easier to keep, sheep or tourists?

GM: ⌜Well...

MM: ⌞Well, I must I must sha- say it's a it's a lot easier to, to shear tourists than it is sheep.⌜Because they don't take the mustering

GM: ⌞(laugh)

MM: that the sheep do, especially in a year like this when it's dry and we've put in an awful lot of long hours in the last two weeks trying to get them together, because we haven't been able to do it. Well, let's say in a normal year when there's a bit of feed around, we can start mustering a little bit before shearing and they go along in their own pace, but this year being very dry, there's been virtually no feed available in what we call a holding paddock, the paddock that we hold the sheep ready for shearing, and so we've only been able to start mustering one week before shearing and it's virtually a matter of putting in fifteen or sixteen hours a day, very solid days non-stop since we started.

Interview with Lew Lethlein

(SK = Seppo Korhonen, LL = Lew Lethlein)

SK: What was your working day like in the thirties when you began?

LL: Oh, it was eight-hour shift and it was a continuous process like day, afternoon and night shift. Three shifts. Nowadays that's been... That's seven and a half hours a shift. What I notice mostly is that the conditions that the miners usually work in today is entirely <vague>, and ventilation and all those sort of things we didn't have in the early days. When I first started, it was the what we call dry boring. And dry boring is that you bore the holes you draw in the dust and that dust fly out of the hole, so and all over the miner. Right throughout the mine the whole area was covered in dust, plus there wasn't much ventilation around either, ventilation were very poor. I did... I hammered a tap. Miners used to have to make the holes in the rock by hand. So that was a very primitive sort of mining compared with today. They soon got

this disease silicosis which miners get, and that <meant> for <their> work... They didn't get any compensation or anything like that but they still had to – because of they knew nothing else but mining they still had to continue doing the mining until – most of the men – until they couldn't work any more. And there was another thin: the housing was non-existent as far as the men, the miners had to build their own shanties and humpies and things like that, whereas nowadays our miners they just can't employ miners unless they're properly housed and, <you know, all that sort of thing>.

Coffee break
Interview with Bronwyn

(B = Bronwyn, I = the interviewer)

B: well for me to start at the beginning, work is very important – I have a large family of young children

I: oh yes

B: and um people tell me that that should be enough

I: ┌m m

B: └but it never has been

B: ┌u m

I: └so you've worked most of the time?

B: yes, well, see altogether I've got ten children

I: really! I can't believe it! you're so┌young!

B: └I've got four of my own and four fostered and two adopted┐

I: yes┘ how can you do it? (laugh)

I: ┌yes –

B: └so – so the four fostered ones have left┌home

I: └uh huh

B: unfortunately one of my children died

I: o h

B: in an accident┐

I: m m┘

B: um   but I've still got five at home ranging in age from fifteen to eight

I: mm? and do -y-you work full time here do you?

B: yes and I've worked fulltime most of their lives as well

Coffee break chat

(G = Gary, P = Pauline, B = Bronwyn)

G: I used to do a chemists run – I'd work from four o'clock sometimes up to six thirty of a night

P: ⌐m m

G: └my hours was usually four to six and I'd – I was then getting about six dollars an hour

P: and what sort of – that's pretty good – you wouldn't get that ⌐much even here

G: └mm, yes that was alright

P: what sort of things did you have to do there?

B: just to do the delivery of the prescriptions⌐

G: the – the deliveries┘

used to deliver all – you used to get to know everybody round the area

P: yes

G: but that was on a push bike but plus cleaning up the shop

P: ⌐yes

B: └m m

G: vacuuming and all that sort of thing – a shop boy ⌐type of thing

P: └m m

G: um then the rubbish and all that sort of stuff came in

B: yes, Douglas did that too – Douglas loved it

G: good – it's a good way to start

P: ⌐m m

Pat └yes

G: you know, an after school job

P: yes

Appendix 3

CONTEXT, PHONETIC ENVIRONMENT AND DURATION OF THE DIPHTHONG TOKENS ANALYZED BOTH AUDITORILY AND ACOUSTICALLY

Down Under: Leslie Oldfield

	environment				ms		environment				ms
LO 11 /Ii/	need / This is what we need here	n	Ii	d	192	**LO 41** /ʊu/	through to / There was a road up through to Darwin	θɾ	ʉy	th	127
LO 12 /Ii/	trees / Here they're out under the trees	tʲ	əi	z	303	**LO 42** /ʊu/	through D- / and then out through Docco river	tθɹ	y	d	60
LO 13 /Ii/	it's easy / From the air, it's easy.	ts	əiː	s	155	**LO 43** /ʊu/	two st- / (limit) of two storeys in buildings	th	yː	st	64
average duration					220	average duration					80
LO 21 /ɛI/	Ranges / the Ranges	ɹ	æĩ	ndʒ	170	**LO 51** /ou/	no d- / It's the same... It's no different really to	n	ʌʉ	d	126
LO 22 /ɛI/	rate / with about a 6.8 per cent growth rate.	ɹ	ɛI	t	133	**LO 52** /ou/	rows / And round the shower rows and your taps	ɹ	ɔʉ	z	215
LO 23 /ɛI/	days / that even surprises me these days, because	d	ɛI	z	165	**LO 53** /ou/	noticed / you probably noticed in your in your hotel	n	ʌʉ	r	102
average duration					160	average duration					150
LO 31 /aI/	outside / Inside that town - and outside - it's green,	s	ɑːᵉ	d	220	**LO 61** /au/	it out / except for getting it out of the ground	r	æɔ̃	r	173
LO 32 /aI/	night / You'll find here at night if you look at	n	ɑːᵊ	tʰ	172	**LO 62** /au/	further out / but further out, out on the Granites,	ɹ	æʊ	tʰ	192
LO 33 /aI/	decided / the previous mayor decided to retire.	s	ɑːᵉ	d	143	**LO 63** /au/	then out / and then out through Docco river	n	aʊ̈	t	123
average duration					180	average duration					160

Gillian Meecham

	environment				ms		environment				ms
GM 11 /Ii/	season / at the beginning of each season,	s	Ii	zn	106	**GM 41** /ʊu/	afternoon / morning and afternoon tea	n	ʏ̃y	n	114
GM 12 /Ii/	bit easier / like to be a little bit easier.	ɾ	Ii	z	185	**GM 42** /ʊu/	do s- / But I do stick to very basic things	d	yː	st	90
GM 13 /Ii/	need / you just don't need at all.	n	Ii	d	201	**GM 43** /ʊu/	afternoon / like Saturday afternoon when a	n	ʏː	n	134
average duration					160	average duration					110
GM 21 /ɛI/	great / it's a great way of life	gɹ	ɛI	t	95	**GM 51** /ou/	toaster / kettle and a toaster, because	th	ɐʉ	st	119
GM 22 /ɛI/	days / although, in those days, it	d	ɛê	z	169	**GM 52** /ou/	don't / you just don't need at all.	d	ɔ̈ə	n?	99
GM 23 /ɛI/	radio / they have a radio... they have	ɹ	ɛe	d	104	**GM 53** /ou/	station owners / The station owners, any of them	n	ɐʉ	n	158
average duration					120	average duration					130
GM 31 /aI/	outside / Mike's the boss. Of the outside.	s	ɑ·e	d	188	**GM 61** /au/	rent out / chalets that people rent out.	th	ao	tʰ	218
GM 32 /aI/	exciting / was a very exciting game.	ks	aI	ɾ	129	**GM 62** /au/	it out / I've thought it out already.	r	aɐ	r	144
GM 33 /aI/	because I d- / because I don't think for a	z	aI	d	119	**GM 63** /au/	town / several friends in town who I see.	th	aɔ	n	241
average duration					140	average duration					200

Heath Sandercock

	environment				ms		environment				ms
HS 11	exceeded	ks	ɪi	d	130	HS 41	through the	θɹ	yː	ð	95
/ɪi/	it has only been exceeded in gold production					/ʊʊ/	remained open through the hard times				
HS 12	treatment	tɹ	ɪi	t	57	HS 42	suitable	s	Yː	r	87
/ɪi/	the biggest open pit and treatment plant mine					/ʊʊ/	develop a reserve, suitable for project				
HS 13	seen	s	ɪ̃ĩ	n?	170	HS 43	through to	θɹ	ü̆ʉ	tʰ	136
/ɪi/	never seen goldmining					/ʊʊ/	on the highway through to the northern parts				
average					120	average					110
duration						duration					
HS 21	nineteen eighties	n	æɪ̞	r	150	HS 51	known	n	əʉ̞	n	152
/ɛI/	During the early 1980's, there was an there was a					/oʊ/	the most richest deposit that is known to man.				
HS 22	grade	kɹ	aɪ	d	181	HS 52	don't	dːː	eʉ	nt?	160
/ɛI/	Because the low-grade deposit that it is					/oʊ/	We don't actively discourage				
HS 23	nineteen eighties	n	æe	r	173	HS 53	associated	sː	öʉ	ssʲ	129
/ɛI/	In the early nineteen eighties, the price of wool					/oʊ/	of being associated with it almost since				
average					170	average					150
duration						duration					
HS 31	nine	n	ɒˑɪ̞	n	227	HS 61	town	tʰ	ɛ̃õ	n	209
/aI/	in eighteen eighty nine I think					/aʊ/	Broken Hill, yes, is a town that was discovered				
HS 32	prices	pɹ̥	ɑˣ	sː	150	HS 62	down	d	ɛ̃õ	n	217
/aI/	caused by the high nickel prices, gold price...					/aʊ/	and it was due to close down.				
HS 33	rise	ɹ	ɒ̞ˑɪ	z	231	HS 63	it out	r	ɛɔ	r	208
/aI/	and it gradually began to rise.					/aʊ/	eighteen months to drill it out and develop				
average					200	average					210
duration						duration					

Meikle Meecham

	environment				ms		environment				ms
MM 11	gets eaten	ts	ᵊi	t	97	MM 41	two days	th	yː	d	103
/ɪi/	and the country gets eaten out.					/ʊʊ/	takes me two days, Saturday to finish off.				
MM 12	sees	s	ᵊi	z	114	MM 42	two days	th	yː	d	83
/ɪi/	she goes down and sees the kids at school.					/ʊʊ/	back after three.. two days and he hadn't				
MM 13	off-season	s	əi	zn̩	157	MM 43	afternoon	n	ʉ̈ʉ	n	121
/ɪi/	And in the off-season, once the sheep's					/ʊʊ/	4 o'clock in the afternoon and half past six				
average					120	average					100
duration						duration					
MM 21	about eight	r	ɜI	t	131	MM 51	road	ɹ	ɔ̈Y	d	141
/ɛI/	They're shearing about eight hundred a day					/oʊ/	they've put a bituine road in, as you would				
MM 22	days	d	ɑi	z	287	MM 52	roads	ɹ	ɔˑy	ds	171
/ɛI/	to take three or four... days to... get all the					/oʊ/	from there, all on gravel roads, that was a				
MM 23	state	st	Λ̃I	t	165	MM 53	no d-	n	ɔ̈ə	d	91
/ɛI/	completely left in a native state, in an					/oʊ/	you've no doubt heard of the Flying Doctor				
average					190	average					130
duration						duration					
MM 31	excite	s	gˑᵉ	thː	168	MM 61	get out	r	ɛʊ	r	149
/aI/	signal that you could excite, which would					/aʊ/	so we can't get out in the paddock				
MM 32	outside	s	gˑe	d	207	MM 62	gives out	z	ɛɔ	t	143
/aI/	work to be done outside: there's a lot of					/aʊ/	signal that the satellite gives out to one that				
MM 33	side	s	ɑˑᵊ	dⱦ	152	MM 63	aircraft out	t	ɛ̈ɐ	t	143
/aI/	or the tourist side line that we operate					/aʊ/	send their aircraft out to pick you up				
average					180	average					150
duration						duration					

Lew Lethlein

	environment				ms		environment				ms
LL 11	disease	z	əi	s	136	LL 41	afternoon	n	Yʉ	ŋ	151
/Ii/	they soon got this disease silicosis.					/UU/	like day, afternoon and night shift.				
LL 12	seen	s	i̠	n	82	LL 42	soon	ş	ỹ:ə	n	168
/Ii/	never been in mine. never seen a bit of gold.					/UU/	they soon got this disease				
LL 13	read	ɹ	i̠i	d	94	LL 43	through to	tθɹ	Y·	ɾ	93
/Ii/	always you read about the men. what they					/UU/	right through to nineteen seventy				
average duration					100	average duration					140
LL 21	days	d	aɪ	s	296	LL 51	process	pɹ	ʌʉ	s·	148
/ɛI/	Those days. the ...					/OU/	was a continuous process like day, afternoon				
LL 22	days	d	ãɪ	θ:	229	LL 52	notice	n	ʌʉ	ɾ	138
/ɛI/	we didn't have in the early days.					/OU/	What I notice mostly is that				
LL 23	great	gɹ	ʌI	t	113	LL 53	notice	n	ʌʉ	ɾ	138
/ɛI/	It's a great feeling to find a bit,					/OU/	why you don't notice that.				
average duration					210	average duration					140
LL 31	night	n·	ɐ̯ɛ̣	t	151	LL 61	yelled out	˥d	ɐo	t	178
/aI/	day, afternoon and night shift. Three shifts.					/aU/	(I) nearly got to the top and I yelled out.				
LL 32	price	pɹ	ɑˑɪ̠	s	156	LL 62	turn out	n	æɔ	t	176
/aI/	with the price of gold has got so high.					/aU/	not actu- not (quite) turn out alright, but I				
LL 33	dry diamond	dɹ	ɑˑe	d	188	LL 63	flat out	ɾ	æɔ	t˥	244
/aI/	these big costeening and dry diamond drills					/aU/	off quite from the start, flat out, because				
average duration					170	average duration					200

Coffee Break

Pauline

	environment				ms		environment				ms
P 11	eighteen	tˢ	ɪi	n	207	P 41	do that	dᶻ	ʉ	ð	64
/Ii/	I was only eighteen and I was					/UU/	and you can't do that now				
P 12	teas	tʰ	Ii	z	219	P 42	do ('n) there	d	ə̈˙	(n)ð	204
/Ii/	had to make the teas and to go on the run					/UU/	sort of things did you have to do ('n) there?				
P 13	teacher	th	i	tʃh	54	P 43	do things	d	Y:	θ	125
/Ii/	# teacher came here					/UU/	being able to do things and then				
average duration					160	average duration					130
P 21	days	d	ë̞:ɪ	z	285	P 51	so that	s	ɔ̈	ð	77
/ɛI/	the first couple of days # I'll introduce					/OU/	it was friendlier then so that the first day				
P 22	train	tɹ	ɛ̈ɪ	n	139	P 52	those	ð	ɔʉ	s	140
/ɛI/	I started to train the new people					/OU/	you'll get those groups of people -				
P 23	stage	st	æˑɪ	dʒ	223	P 53	know just	n	ʌʉ	dʒ	195
/ɛI/	at that stage and you know.					/OU/	# you know, just for...				
average duration					220	average duration					140
P 31	that I st-	ɾ	ɒe	st	157	P 61	around	ɹ	æ̈ð	n	142
/aI/	not long after that I started to train					/aU/	taken around personally				
P 32	right	ɹ	ɑˑɪ	t	350	P 62	her out	ɹ	a3	ɾ	156
/aI/	# yes, that's right - I think I'd probably					/aU/	a friendship with her out o- # out of work				
P 33	then I think	n	ɑ:	θ	114	P 63	# out of work	?	æ3	ɾ	112
/aI/	um but then I think I would like to					/aU/	out o- # out of work because				
average duration					210	average duration					140

Bronwyn

	environment				ms		environment				ms
B 11 /Ii/	seventeen	tʰ	ẽɪ	nɟ	161	B 41 /Uu/	two adopted	th	Yu	əd	100
	was a nurse for seventeen years #						four fostered and two adopted #				
B 12 /Ii/	Pauline	ʈ	eɪ	n	169	B 42 /Uu/	two days	th	Yː	d	100
	# um Pauline started to train me						was only with me for two days -				
B 13 /Ii/	need	n	ẽi	d	198	B 43 /Uu/	two days	th	Yː	d	118
	no. I need contact with people #						for two days I'd only been with				
average duration					180	average duration					110
B 21 /ɛɪ/	days	d	æˑɪ	z	255	B 51 /OU/	I'd only	d	ʌɣ	n	177
	with me for two days - and then						I'd only been with Pauline -				
B 22 /ɛɪ/	holidays	d	æˑɪ	z	307	B 52 /OU/	Tony	th	ʌʉ	ni	150
	then she went off on holidays #						boys at home, Tony and Douglas				
B 23 /ɛɪ/	days	d	æˑɪ	z	280	B 53 /OU/	Tony	th	ə̈y	ni	251
	because for two days I'd only been						.. yes but Tony used to get on an				
average duration					280	average duration					190
B 31 /aɪ/	died	d	ɑːe	d	320	B 61 /aU/	branches out	z	ɛa	t	247
	one of my children died #						and it just branches out #				
B 32 /aɪ/	night-duty	n	ɑːɪ	dɟ	236	B 62 /aU/	down	d	ɣo	n	251
	I worked night-duty						was down the Princes Highway,				
B 33 /aɪ/	was isolated	z	ɑˑe	s	148	B 63 /aU/	all out	ʈ(ʔ)	æɣ	t	275
	I felt like I was isolated						I've got to fork it all out (laugh)				
average duration					230	average duration					260

Gary

	environment				ms		environment				ms
G 11 /Ii/	completed-	pʈ	əɪ	r	99	G 41 /Uu/	through the	tθɹ	Y	ðə	78
	and utter break - completedly - I resigned						# ah through the - through				
G 12 /Ii/	needed	sn	ɪi	dj	119	G 42 /Uu/	through the	tθɾ	Y̆	ðn̩	77
	I just needed that change						the - through the newspaper				
G 13 /Ii/	deliveries	ɹ	ɪiˑ	ʒ	186	G 43 /Uu/	Noosa	tnː	Yˑ	sˑ	88
	the - the deliveries # used to deliver all						up at Noosa and sit them on				
average duration					130	average duration					80
G 21 /ɛɪ/	great	skɹ	æ̈e	rə	96	G 51 /OU/	approached	pɹ	ɐy	tʃ	131
	which was great - I didn't shave						well, not approached but ran				
G 22 /ɛɪ/	breaks	bɹ	ʌ̈ɪ	ksˑ	211	G 52 /OU/	no no	n	ɵ̈ʊ	n	147
	a lot of breaks in between,						# no no that's right				
G 23 /ɛɪ/	change	tʃh	æi	ndʒə	277	G 53 /OU/	no that's	n	ɔʉ	ð	162
	I just needed that change						no that's right #				
average duration					190	average duration					150
G 31 /aɪ/	resigned	z	ɑˑə	n	191	G 61 /aU/	ng out of	ŋ	æ̈ʌ	r	183
	- I resigned from that						living out of each others'				
G 32 /aɪ/	an' I'd	ɛn	ɑ̈ˑe	dɦ	177	G 62 /aU/	around	ɹ	æ̈ə̈	niː	184
	four to six an' I'd - I was getting						running around you got to				
G 33 /aɪ/	right	sɹ	ɑːɪ	(t)	487	G 63 /aU/	around	ɹ	æð	n	189
	no no that's right #						we move around quite a bit				
average duration					280	average duration					190

LEW LETHLEIN'S PRENASAL /aʊ/

	environment	quality	ms
LL a	these outback	aɔ	159
/aʊ/			
LL b	flat out	ɑʊ	173
/aʊ/			
LL 61	yelled out	a̠ɔ	178
/aʊ/			
LL 62	turn out	æɔ̜	176
/aʊ/			
LL 63	flat out	æɔ	244
/aʊ/			
average			190
non-prenasal			
LL c	down	ɛɔ̜	154
/aʊ/ / _n			
LL d	towns like	ɛɔ̝	202
/aʊ/ / _n			
LL e	round	ɛɔ̝	172
/aʊ/ / _n			
LL f	down	ɛ̃õ̃	185
/aʊ/ / _n			
LL g	underground	ɛɑ̝	158
/aʊ/ / _n			
average			170
prenasal			