Diphthongisation of /e/ in NZE: a change that went nowhere?

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Introduction[1]

In the early 1970s when I was in London, an urban legend maintained that New Zealanders could be identified as soon as they answered a question in the affirmative. In Earl's Court, that Mecca for Down-Under travellers, a Kiwi's [jiəs] was easily distinguishable from an Aussie's [jeə]. In a similar vein, Turner (1966: 98) describes a New Zealander being recognised in a London cafe by a Frenchman who had spent some time in New Zealand, when all the New Zealander said was [jiəs].

If *yes* was the only word in which this diphthongal pronunciation of /e/[2] appeared, we could attribute the diphthongisation to the preceding palatal /j/, and the phenomenon would not be linguistically remarkable. However informal observation, together with comments from various authors, suggests that *yes* is not the only /e/ word which receives a diphthongal pronunciation. Turner (1966) quotes a pronunciation of *bed* as [biəd] for children (though he does indicate that this 'is likely to disappear as they grow older' p98), and Wells (1982), apparently quoting Hawkins, indicates that an environment before /d/ is most likely to produce a diphthongal variant. Wells specifically mentions *shed* as being pronounced [ʃiəd]. Gordon and Maclagan (1989), add *ten, end* and *men* as words which have been noticed informally as often receiving a diphthongal pronunciation.

/e/ is one of the group of New Zealand front vowels which is known to be raising (/e/ and /æ/) and centralising (/ɪ/). This phenomenon is well documented (Bauer 1986, Bell 1997a, 1997b, Maclagan and Gordon 1996, Trudgill et al 1998). When a vowel sound continues to raise, two different scenarios are possible: either it can centralise (as New Zealand English /ɪ/ has done) or it can break into a diphthong as happened in the Great Vowel Shift where /i/ became [ai] or as happens to /e/ in some Southern dialects of the United States of America where *bed* becomes [beɪd] (Wolfram and Schilling-Estes, 1998). In the Great Vowel Shift, we assume that /i/ raised as high as possible before diphthongising.[3] Preliminary acoustic analysis indicates that NZE /ɪ/ raised considerably before it centralised some time in the last 50 years (Watson, Maclagan & Harrington, 1998) thus potentially limiting the space into which /e/ could raise. As /e/ has been raising for some time in New Zealand, breaking into a diphthong is a decided possibility.

When we started to collect data on Modern New Zealand English (Mod NZE) at the University of Canterbury, we set out to collect information on the diphthongal pronunciation of /e/. This paper presents the results of the investigation into the diphthongal versions of /e/ in Mod NZE.

Method

Since 1994 students in the New Zealand English class at the University of Canterbury have been collecting data on Mod NZE (see Gordon & Maclagan 1995 for details). Part of the data collection involves tape recording a Word List which is designed to gather information on many of the interesting features of Mod NZE. There are two items on the list which address /e/. The first is a set of words parallel to the sets used for the other front vowels and the second includes words which have been noted as often being produced with a diphthong.

The two sets are

      Set 1: the General set   *bet, bed, beck, beg, Ben*

      Set 2: the set of potential diphthongs   *ten, shed, yes, end, bed*

Set 1 occurred towards the beginning of the Word List, and Set 2 towards the end. *Bed* was included on both sets as a check of the consistency of speakers' pronunciations.

Data have now been collected from 204 speakers. The speakers are chosen to illustrate contrasts of age, sex and social class.[4] Table 1 gives details of the speakers.

Table 1: Numbers of speakers

Speaker Category	FON	MON	FOP	MOP	FYN	MYN	FYP	MYP	Total
Number	28	25	23	26	25	26	23	28	204

M = male, F = female, Y = younger (age 20–30 years), O = older (age 45–60 years), P = professional, N = non-professional

Each speaker's pronunciations of these words were transcribed by the author using a narrow IPA analysis. Approximately 2,000 tokens were analysed for this study. The transcriptions were made each year, after the data were collected. This means that the transcriptions were made over a period of four years. In order to check consistency, data collected in one year (1996) were re-transcribed two years later. There was substantial agreement between the two transcriptions. The analysis differed markedly for one speaker (/e/ was coded once as [ɛ̞] and once as [e̞]) and there were minor differences for 8% of the other speakers. It was decided that this rate of agreement was acceptable, and the other analyses were not rechecked.

Unbroken (non-diphthongised) realisations of /e/ varied from relatively open [ɛ] almost to a short [i]. However, most speakers were consistent in terms of their pronunciation of all the unbroken sounds across the two sets of words they read. Speakers were therefore classified as using either relatively open (below [e]), neutral (approximately at [e]), or relatively close (above [e]) variants of the /e/ phoneme on the basis of their unbroken pronunciations.

Results

Set 1: words which were not expected to be diphthongised

Results will first be presented for the pronunciations of the words in Set 1. Except for *bed*, these words have not generally been noted for having diphthongal realisations in NZE. Table 2 and Figure 1 present the number of speakers in each category who produced open, neutral or close versions of /e/ in Set 1. It can be seen that very few speakers use open versions of /e/. The majority of the older speakers use relatively neutral pronunciations (approximately at Cardinal 2, [e]) and the majority of the younger speakers use closer pronunciations. These results are consistent with the on-going raising of /e/ in NZE.

Table 2: Numbers and percentages of speakers in each category who used open, neutral and close versions of /e/ in Set 1.

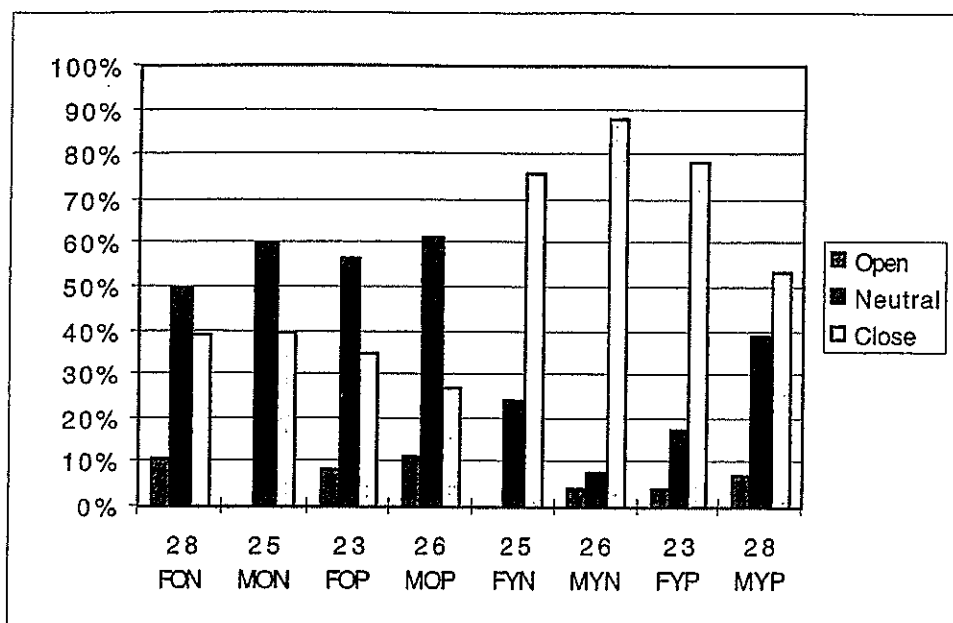| Speaker Category	FON	MON	FOP	MOP	FYN	MYN	FYP	MYP
# speakers	28	25	23	26	25	26	23	28
Open Versions	3	0	2	3	0	1	1	2
	11%	0%	9%	12%	0%	4%	4%	7%
Neutral versions	14	15	13	16	6	2	4	11
	50%	60%	57%	62%	24%	8%	17%	39%
Close versions	11	10	8	7	19	22	18	15
	39%	40%	35%	27%	76%	88%	78%	54%

Figure 1: percentage of speakers who used open, neutral and close variants of /e/ by speaker category for the words in Set 1.

Table 3 and Figure 2 present the results for the number of diphthongised tokens of the words in Set 1. Because there were five words in Set 1, if more than 20% of the words spoken by a group are broken, this would indicate that these speakers are diphthongising more words than just the expected *bed*. The only groups for whom more than 20% of tokens are diphthongised are the older non-professional speakers.

Table 3: Numbers of tokens of /e/ in the Set 1 broken by each speaker category

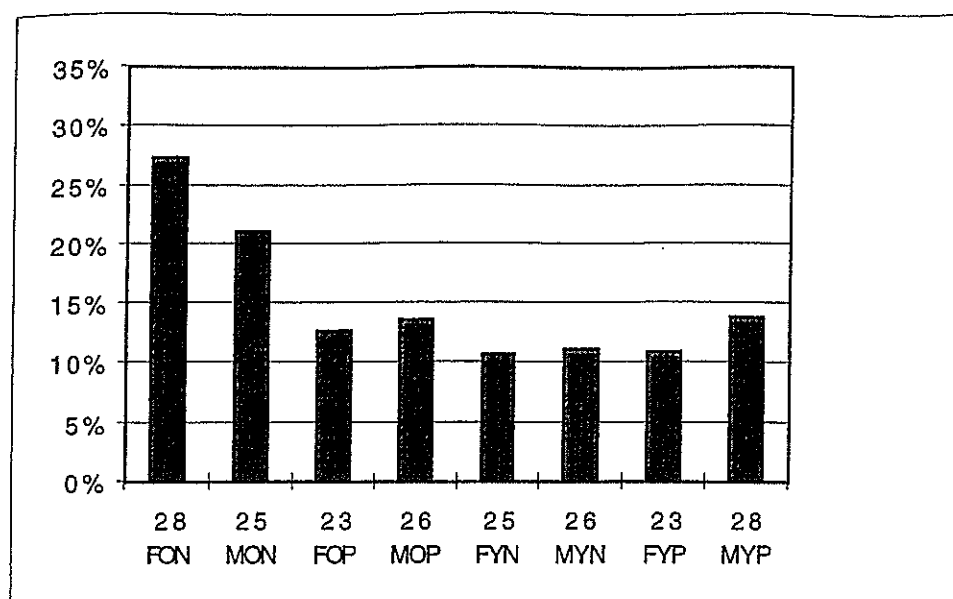| Speaker Category	FON	MON	FOP	MOP	FYN	MYN	FYP	MYP
# speakers	28	25	23	26	25	26	23	28
# broken /e/ tokens	33	23	13	16	12	13	11	17
	27%	21%	13%	14%	11%	11%	11%	14%

Figure 2: Percentage of /e/ words broken in Set 1

Set 2: words which were expected to be diphthongised

The results for Set 2 are presented in Table 4 and Figure 3. This set contains words which have generally been noted as often receiving diphthongised pronunciations, therefore higher percentages of diphthongised tokens were expected from all speaker categories. When we look at Table 4 and Figure 3, we do find that relatively more of the tokens are, in fact, diphthongised, and that the patterns of diphthongisation across speaker categories are relatively similar to those evident for Set 1. All the older speaker groups diphthongise more than 20% of these tokens, and the younger professional men also reach 20% of diphthongised tokens.

Figure 4 presents the results when both word sets are combined. The older non-professional men and women produce considerably more diphthongised tokens of /e/ than most of the other speaker groups. The other older speakers, and the younger male professional speakers, also produce a notable number of diphthongised tokens.

Table 4: Number of diphthongised tokens in Set 2 by speaker category. Also the number of speakers whose non-broken vowels in Set 2 were classified as close

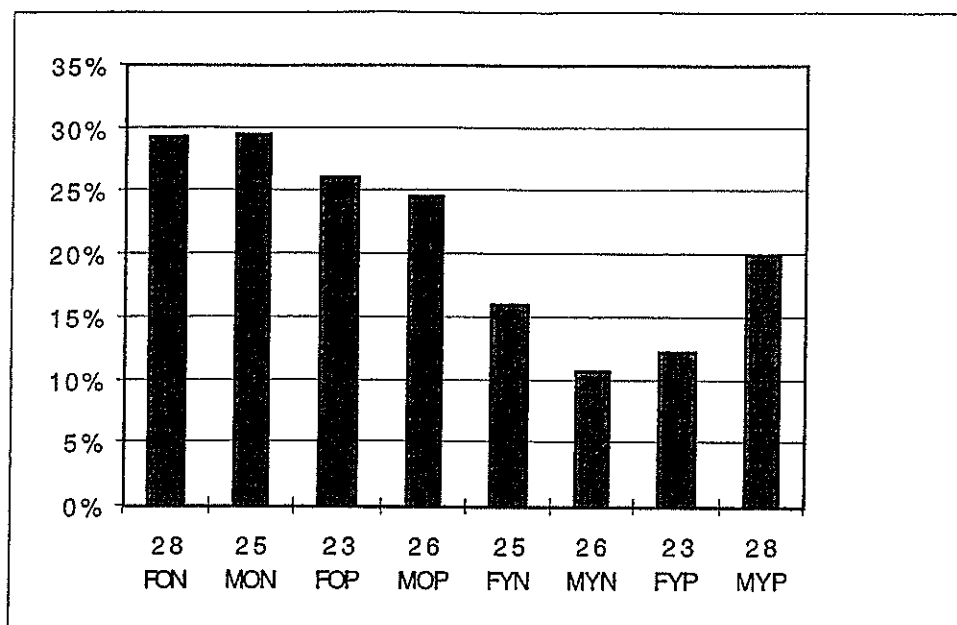| Speaker Category	FON	MON	FOP	MOP	FYN	MYN	FYP	MYP
# speakers	28	25	23	26	25	26	23	28
# broken	41 28%	37 30%	30 26%	32 25%	20 16%	14 11%	14 12%	28 20%

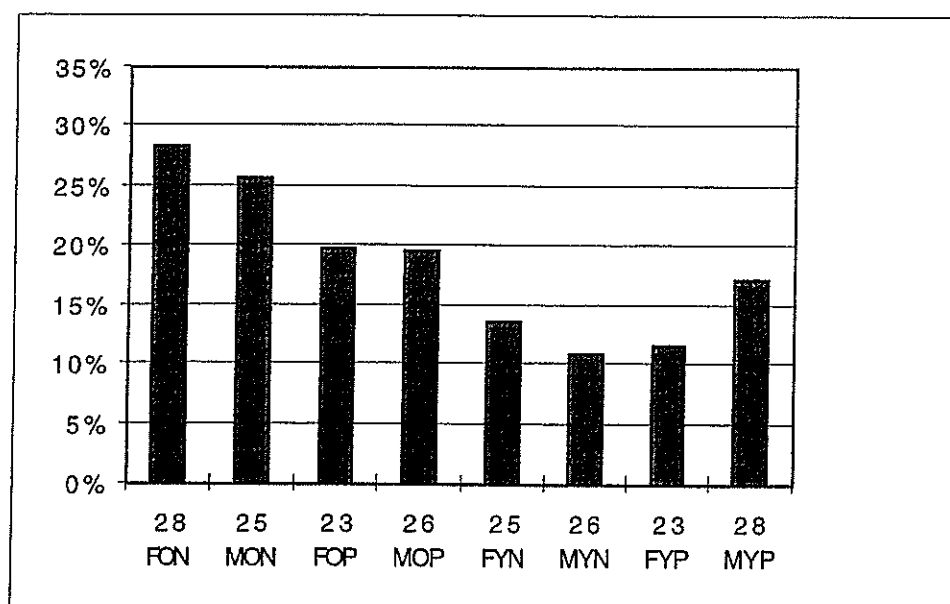**Figure 3: Percentage of words broken in Set 2 by speaker category**

Figure 4: Percentage of words broken in both Sets 1 and 2 by speaker category.

When we looked at the grouped results, there seemed to be an inverse relationship between the number of diphthongised tokens and the number of close, non-broken tokens produced. In order to examine this relationship more closely, we checked the intraspeaker relationship between the presence of diphthongisation and the phonetic realisation of non-broken tokens. The results of this analysis are presented in Table 5 and Figure 5. They reveal that the correlation is not completely straightforward. The older speakers who

produce more diphthongal versions of /e/ are much less likely to also use close variants. Correspondingly, the younger non-professional speakers who produce close variants of /e/ are less likely to produce diphthongised versions. The younger professional speakers are in-between. The women produce close variants of /e/, but these are equally likely to be monophthongs or diphthongs. And while most of the younger professional males produce close and diphthongal versions of /e/, others produce open diphthongs and still others produce close monophthongs. Table 5 and Figure 5 therefore provide support for a negative correlation between the use of diphthongised tokens and the use of close variants. Again the younger professional males stand out as being different from the other younger speakers.
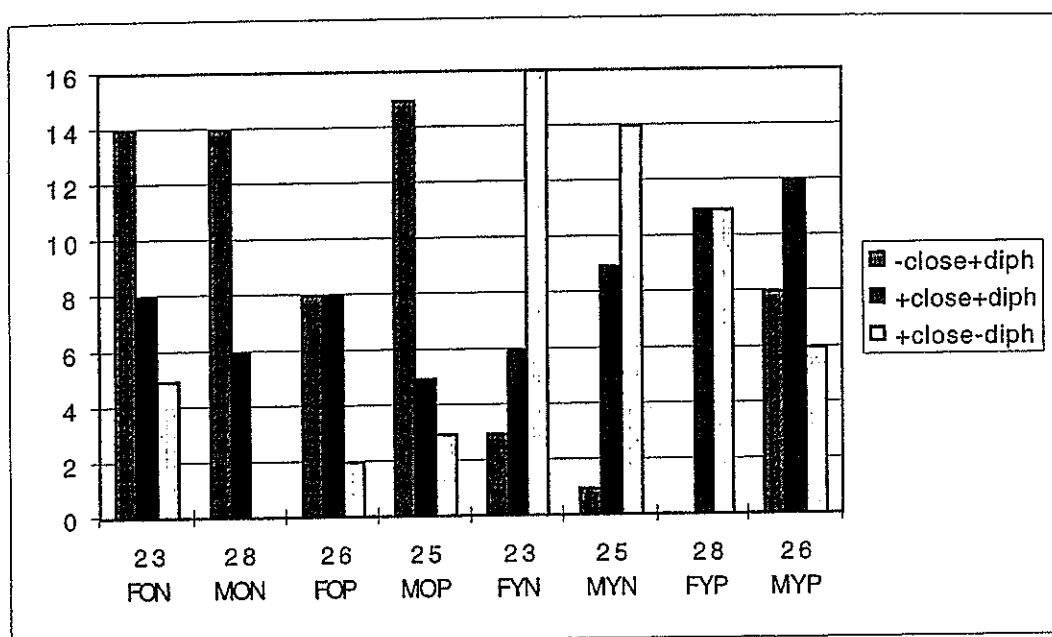

Figure 5: Relationship between closeness and diphthongising of /e/ for speakers according to speaker category. Because very few speakers in each Speaker Category use variants that are neither close nor broken, they are omitted from this figure for the sake of clarity.

Table 5: Relationship between closeness and diphthongising of /e/ for speakers according to speaker category

Speaker Category	FON	MON	FOP	MOP	FYN	MYN	FYP	MYP
# speakers	28	25	23	26	25	26	23	28
-close -diphthong	1	5	5	3	0	2	1	2
-close +diphthong	14	14	8	15	3	1	0	8
+close +diphthong	8	6	8	5	6	9	11	12
+close diphthong	5	0	2	3	16	14	11	6

Results for individual words

We then considered whether particular words in the sets were more likely to be diphthongised than others. Table 6 and Figure 6 present the number of times that each word in the two sets was diphthongised. The words in Set 2 are considerably more likely to be broken than those in Set 1, with the exception of *bed* which is broken the same number of times in each set.[5]   It can be seen that /e/ is much more likely to be diphthongised when the final consonant is voiced than when it is voiceless. *Bed* and *shed* are diphthongised considerably more than the other words, consistent with Wells' comment that /e/ is most likely to be diphthongised before /d/. This pattern is consistent across all of the speaker categories. Even those speaker groups who diphthongise relatively few words, still produce most diphthongs for the two versions of *bed* and for *shed*.

Table 6: Number of diphthongised tokens for each of the words in Set 1 and Set 2.

Word	Bed	Bed	Shed	Ten	Yes	End	Ben*	Beg	Bet	Beck
Set	1	2	2	2	2	2	1	1	1	1
Diph	69	69	66	26	26	25	9	18	12	2
	34%	34%	32%	13%	13%	12%	11%	9%	6%	1%

*Ben was not included in the Word List in the first two years of this study. Therefore there are fewer total tokens for this word.
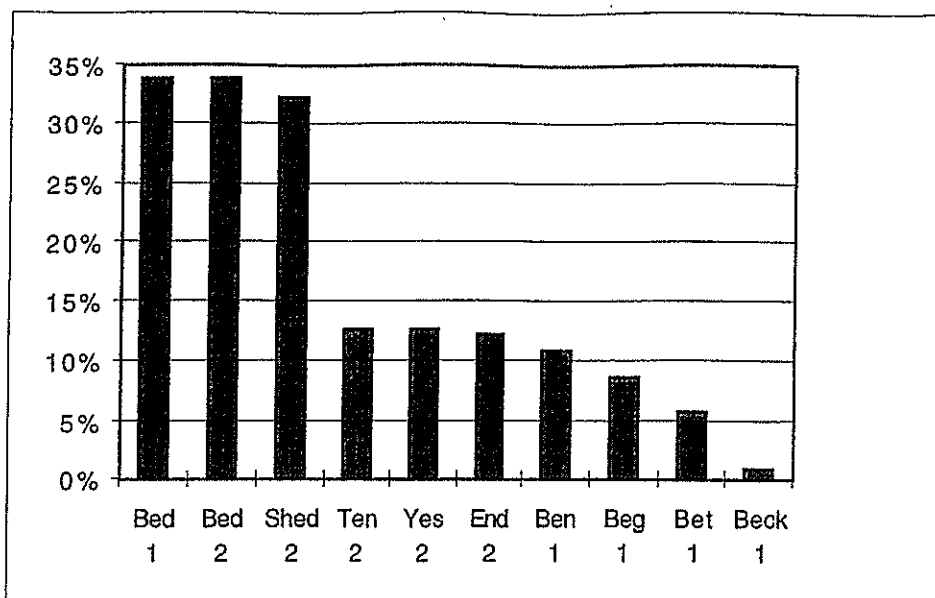
Figure 6: Percentage of diphthongised pronunciations by individual words

Because the 'urban legends' always referred to a [jiəs] pronunciation for *yes*, a check was carried out to see whether there were any differences between the words as to whether the diphthongised form was the more open [eə] or the closer [ɪə]. The open [eə] form was used most often for the words which were diphthongised the most. It was used for 80% of the time for diphthongised *shed* and just over 50% of the time for the diphthongised versions of *bed* in each Set. The closer [ɪə] form was used more often for *ten, yes, end,* and *beg,* but these words were not diphthongised very much of the time. *Yes,* the word which was remarked on in the 1970s, is hardly broken at all by the younger speakers — older speakers produce 20 diphthongised versions of *yes* where younger speakers only produce six.

Discussion

These results indicate that there have been two different patterns in the movement of /e/ in Mod NZE. From analysis of data in a historical corpus held at the University of Canterbury (The Mobile Unit, see Lewis 1996, and Trudgill et al. 1998) it seems that many of the early settlers who came to New Zealand already used relatively close variants of /e/, [ɛ] ~ [e]. In New Zealand, in contrast to Britain, this relatively close pronunciation continued to raise. Younger speakers of Mod NZE continue in this tradition, and produce variants of /e/ that are nearly as close as their variants of /i/.

But in between there seems to have been a movement to break the already relatively close /e/ into a diphthong. The older speakers in this study show the results of this movement. The speakers in this older age group are between 45 and 60 years old. The trend is led by the non-professional speakers, but their professional peers also diphthongise words which are prone to diphthongisation. These speakers, or their peers, would probably have been in London on their Overseas Experience around 1970 when the diphthongised versions of *yes* were commented on. It would seem that many

of this generation of speakers used diphthongised versions of other /e/ words, and continue to use these diphthongal versions today. But they have not passed this pronunciation on to their children. The younger speakers in this study reject the diphthongisation route in favour of continued raising of the /e/ vowel, until /e/ is distinguished from /i/ mainly by length.[6] This trend is again led by the non-professional speakers, followed closely by the professional women. Some speakers then break /i/ into a diphthong, [əɪ]. We do not yet have figures for this phenomenon, nor have we yet considered whether the speakers who produce particularly close /e/ variants are also likely to produce diphthongised versions of /i/. We do know from the results presented here that those speakers who produce diphthongised versions of /e/ are less likely to produce close variants in their non-diphthongised words, and those speakers who produce close variants of /e/ are less likely to diphthongise even those words which are most prone to diphthongisation. This would seem to indicate that speakers use one or other of these different pronunciations of /e/ rather than using both on different occasions.

Most of the speakers in this study came from Christchurch. In her 1995 study of Auckland speakers, Margaret Batterham analysed /e/ words which were given a diphthongal pronunciation. Her data base is considerably larger than that of the present study, in that she included /ed/ tokens in casual speech and in a reading passage as well as in word lists and minimal pair lists. Her results parallel those from this study. Batterham found that her older, lower class speakers (age 55+) produced the greatest number of lengthened and diphthongised versions of these /ed/ words whereas her younger lower class speakers (age 15+) produced the greatest number of close versions of the words. Her female speakers led both trends. This is parallel to the present results where the older non-professional women produce the greatest number of diphthongised tokens. In this study, slightly more of the younger non-professional men than women produce close versions of the /e/ words and many of the younger professional women also produce close /e/ tokens. Batterham's study included different words from the present study, but *bed* is included in both. *Bed* was the word most likely to be diphthongised in the present study. It was also the word most likely to be diphthongised in Batterham's study. Unfortunately Batterham does not discuss *shed* which was the word next most likely to be diphthongised in the present study, and the present study does not include the other words for which Batterham provides an analysis. In Batterham's study, approximately 35% of the instances of *bed* were diphthongised in her casual speech style. In the present study, 34% of *bed* tokens were diphthongised. *Bed* is one of the words most commonly noted as having a diphthongal pronunciation. It is therefore probably not chance that it comes out as the word most likely to be diphthongised in both of these studies. Batterham found that there was a greater tendency for words to be lengthened/diphthongised in the more formal styles. *Bed* is not included in her word lists, but had it been, it may have received an even higher percentage of diphthongised versions than the 35% it received in the casual speech styles in her study.

Finally a note on the productions of the younger professional male speakers for Set 2, the set of words likely to be diphthongised. Most of the

younger speakers did not diphthongise many of these words, but the younger male professional speakers diphthongised 20% of them. We have found that these speakers also behave more like the older speakers rather than the younger speakers in relation to several other variables in the full Word List (Maclagan, Gordon & Lewis, in prep.). At present we are investigating this behaviour further.

Conclusions

Most of the younger speakers in the present study produce relatively close variants of /e/, apparently continuing the on-going raising of /e/ in Mod NZE. Some older speakers, aged between 45 and 60, produce marked numbers of diphthongal tokens and relatively few close tokens of /e/. The results presented here, based largely on speakers from Christchurch, are very similar to results obtained from Auckland by Margaret Batterham. They therefore cannot be regarded simply as a Christchurch phenomenon.

These studies demonstrate that, although /e/ has raised noticeably since New Zealand was settled, some speakers used diphthongisation rather than continued raising as their contribution to on-going language change in Mod NZE. Both continued raising of a front vowel and breaking into a diphthong are recognised patterns of sound change. This study cannot explain why one generation of speakers apparently chose to break /e/ into a diphthong whereas their children reverted to the pattern of /e/ raising that was already apparent in NZE. It does however demonstrate that the upward movement of /e/ in NZE has not been totally smooth and straightforward.

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Notes

[1] I wish to thank Gillian Lewis and Elizabeth Gordon for helpful comments on this paper. Thanks also to David Maclagan for help with analysis, and to the students in the New Zealand English course at the University of Canterbury who gathered the data.

[2] Because the DRESS vowel is so close in New Zealand English, the common NZ convention of using /e/ rather then /ɛ/ to transcribe it is followed.

[3] Though Wolfram and Schilling-Estes imply (1998: 73) that /e/ can diphthongise without raising to the highest possible point.

[4] It is difficult to find unambiguous terms to refer to social class in New Zealand. In this paper, *professional* and *non-professional* are used rather than *upper* and *lower class* to describe social class distinctions. See the discussion in Gordon and Deverson 1998.

[5] While I cannot claim that speakers always pronounced the two tokens of *bed* identically, the similar number of tokens diphthongised on each set nevertheless indicates a remarkable consistency in the pronunciation of this word.

[6] Unfortunately the present study did not include speakers aged between 30 and 45, so we cannot see to what extent speakers in this age group produced diphthongised versions of /e/. However Batterham (1995), whose results are discussed below, found that there was a consistent increase in the number of close tokens and a decrease in the number of lengthened/diphthongised tokens of /e/ for her 3 age groups: 15+, 30+ and 55+.