Emergent patterns in the vowels of Singapore English

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In the past, the vowels of Singapore English (SgE) have often been described with reference to British English (BrE). However, certain idiosyncratic patterns are now emerging, and these often cannot be predicted by referring to any other varieties of English. The vowels in words such as *egg*, *beg*, *poor*, *pure*, *won*, *one* and the first syllable of *absorb* and *abroad* are investigated from the data of 38 speakers, and it is shown that a new standard of SgE pronunciation is emerging for the great majority of speakers.

1. Introduction

Many features of the vowels of Singapore English (SgE) have been described extensively, particularly the lack of distinction between the long and short vowel pairs /iː, ɪ/, /ɔː, ɒ/, /ɑː, ʌ/ and /uː, ʊ/ and also between the two non-close front vowels /e, æ/ (Tongue 1979: 28, Tay 1982, Brown 1988b, Bao 1998 and 2001, Deterding and Poedjosoedarmo 1998: 155, Low and Brown 2005: 116). Recent instrumental work has confirmed these observations, particularly the lack of distinction between /iː, ɪ/ and /ɔː, ɒ/ (Deterding 2003) and the merging of /e, æ/ (Suzanna and Brown 2000, Deterding 2003).

Note that these descriptions all involve reference to an external variety of English: They consider the contrasts that exist in a variety such as BrE and report which of them are not found in SgE. While this kind of comparison with a widely-studied external variety provides a valuable reference point against which the new variety can be presented, there is a real danger that certain features in the new variety will be overlooked if it is always viewed through the filter of an existing variety. Mohanan (1992) makes a strong case for describing a new language variety such as SgE independently and without reference to anything else, and Alsagoff and Ho (1998: 135) argue that, while "comparisons

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can be extremely useful", some aspects of the structure of SgE are likely to be overlooked if comparison is always made with BrE.

This paper will investigate a range of distinctive patterns in the realization of the vowels of SgE that are, in most cases, not predictable by reference to BrE. Specifically, the following issues will be considered:

- the vowel in *egg* and *beg*
- the vowel in *won* and *one*
- the vowel in *poor* and *pure*
- the vowel in the first syllable of *absorb* and *abroad*
- the duration of the vowel before voiced and voiceless final fricatives.

2. Data

Some recent acoustic work on the vowels of SgE (Deterding 2003) has involved analysis of conversational vowels in a corpus of spoken interviews. While such data has the advantage of being reasonably natural, it is in some cases difficult to extend it to test specific hypotheses, and more controlled data then become essential. Consequently, read data will be used in the current study.

A total of 38 trainee teachers at the National Institute of Education (NIE) in Singapore were recorded reading a set of twelve sentences. Of these subjects, 34 were female and 4 male, 30 of them (28 female and 2 male) were ethnically Chinese, 7 (5 female and 2 male) were Malay, and 1 female was Indian. While more Malay and Indian subjects would have enhanced the reliability of inter-ethnic comparisons, the range of students reflects the ethnic make-up of Singapore moderately well, though there does remain a substantial gender imbalance. The subjects were aged between 22 and 30. Two of the Malay females were fourth-year students who were about to graduate from NIE, and all the other 36 subjects were second-year students who had signed up for but not yet started an elective course on Phonetics and Phonology. All of the subjects were taking English Language as their chosen speciality in their undergraduate training at NIE, and so all had reasonably good skills in English, though there was some variation in this respect, with their ability at English ranging from reasonably good to excellent. For most of them, English was their first language, though others used another language, such as Mandarin or Malay, at home and with friends.

The subjects were recorded during April and May 2004 in the NIE Phonetics Laboratory with a microphone placed just a few inches from their lips in

order to ensure a high quality of recording. The data were recorded directly onto a computer using Multispeech software from KAY. In cases where subjects stumbled or made an error in reading a sentence, they could re-record that sentence.

The twelve sentences are:

(1) That bed with a blue peg on it has won a prize.
(2) I wonder when that red dog will cease its attack.
(3) He's dead sure it can absorb those rays of the sun.
(4) I have a vague plan for an adventure tour instead.
(5) The man who led that raid maybe sees the result.
(6) The best cure may consist of that race to adapt.
(7) According to tradition, he made bread while abroad.
(8) The consultant fled across the seas in July.
(9) I dearly want to beg for that raise in my pay.
(10) The poor lad cannot afford to get a bad grade now.
(11) The bad employee will try to seize all the cash.
(12) We fed her an egg and one spoon of pure honey.

Although some of these sentences might seem rather strange, they do allow investigation of a wide range of different features, including the vowel in words such as *beg*/*egg*/*vague*, *won*/*one*, *poor*/*cure*, and the first syllable of *absorb*/*abroad*. Furthermore, the sentences were intended to allow comparison of the duration of the vowels in *cease*/*sees*/*seas*/*seize* and also *rays*/*race*/*raise*, and the aim was to ensure that each of these words occurs in a comparable position in its respective sentence, specifically as the ninth syllable out of twelve, and each is followed by two weak syllables and then one strong syllable. (See sentences 2, 3, 5, 6, 8, 9 and 11.) Despite the undoubted peculiarity of some of the sentences, the subjects had little difficulty reading them.

Five British male speakers also recorded the sentences. Minimal reference will be made to these British data, but they will be useful when considering the duration of vowels before fricatives in the *cease* and *rays* words.

3. The vowel in *egg* and *beg*

As discussed above, it is well established that there is a tendency for speakers in Singapore not to make a distinction between the vowels in *bet* and *bat*, and we might represent the merged vowel as /ɛ/. However, this does not mean that all words with /e/ in other varieties of English necessarily have this vowel /ɛ/ in

SgE, as Tay (1982: 141) reported that some but not all educated speakers have a close vowel in words such as *bed* and *dead*. For some speakers at least, it seems that *egg* rhymes with *vague* and not with *peg*, that *bed* and *dead* rhyme with *made* and not with *fed*, and that *red* and *raid* are homophones.

To investigate the extent and the incidence of this relatively close vowel, measurements were made of the first two formants of the vowels in *egg*, *beg*, *peg*, *bed*, *dead*, *fed*, *bread* and *red* from all 38 subjects. Measurements were also made of the vowel in *vague*, *made*, *grade* and *raid*, words with the same coda as the previous ones (so they are potential rhymes), which allows us to neutralize the coarticulatory effects of the final consonant when making judgements of vowel quality.

Although plotting a single measurement of the first two formants works fairly well for representing the vowel quality of monophthongs, especially unrounded front monophthongs (Ladefoged 2001: 176, 2003: 105), it is more problematical for diphthongs, which inevitably exhibit considerable movement of the formants and so cannot usually be represented by means of a single point measurement. However, previous work has confirmed that /eɪ/ tends to be realized with less diphthongal movement in SgE than in many other varieties of English (Deterding 2000, Lee and Lim 2000). It is therefore reasonable to treat this vowel as a monophthong in Singapore, so it can actually be represented quite well by means of a single measurement of the first two formants.

Figure 1 shows a plot of the first two formants for the vowel in *peg*, *vague*, *beg* and *egg* for all 34 female speakers. The male values are not included in this or indeed any of the plots, because inevitably all male formants would be at

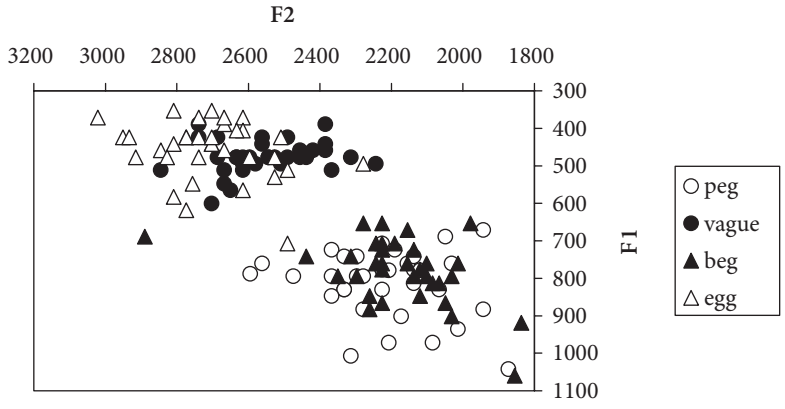

Figure 1. Plot of the first two formants for the vowel in *peg*, *vague*, *beg* and *egg* for the 34 female subjects.

lower values, and this would distort the display. There is still no easy method of achieving speaker normalization for acoustic measurements, particularly between male and female speakers (Ladefoged 2001: 196).

It can be seen from Figure 1 that there are two quite distinct vowels, a relatively close vowel in the upper left corner and a more open vowel in the lower right corner. Furthermore, for all speakers except one the vowel in *egg* belongs with *vague* and not with *peg* or *beg*, as there is just a single unfilled triangle representing the vowel in *egg* in the more open cluster of vowels. This single dissenting value is for one of the Malay subjects, but no other Malays, including the Malay males, have the relatively open vowel in *egg*. The consistency of this result, that all the speakers except for one have a close vowel in *egg* so that this word rhymes with *vague*, is remarkable, particularly given that *egg* rhymes with *peg* and *beg* and not with *vague* in most external varieties of English. The lack of variation found here conflicts with the range of pronunciations suggested by Tay (1982), and it is possible that more homogeneity has emerged since she conducted her study. The results reported here also clearly show that *beg* has an open vowel, and this does not support the claim of Bao (2001: 77) that *beg* has a close vowel.

Figure 2 shows a plot of the first two formants for the vowel in *fed*, *made*, *bed* and *dead* for the 34 female speakers. Although the separation into two vowels is not quite so clear as in Figure 1, one can still see that all of the tokens of *fed* are toward the bottom right (indicating a relatively open vowel) while those for *made* are near to the top left (showing a more close vowel). Furthermore, all the tokens of *bed* and *dead* seem to belong with the close vowel,

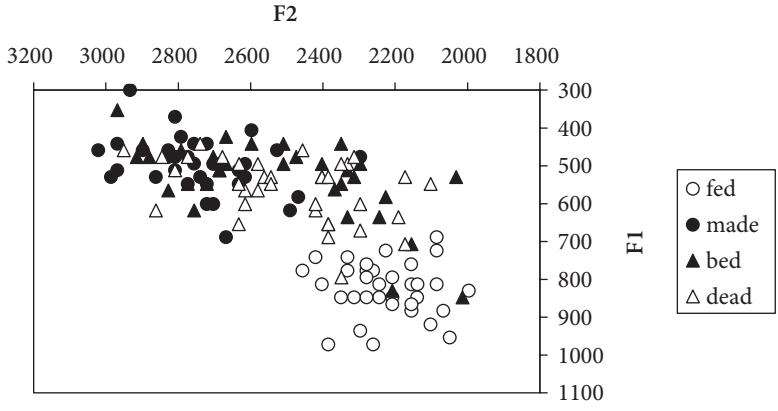

Figure 2. Plot of the first two formants for the vowel in *fed*, *made*, *bed* and *dead* for the 34 female subjects.

except for three: The Malay subject who has an open vowel in *egg* also has an open vowel in both *bed* and *dead*, and one Chinese subject has an open vowel in *bed* (but not in *dead*). There are also a few tokens of *bed* and *dead* that might be regarded as indeterminate between the two vowels. One can conclude that the overwhelming majority of the speakers have the same close vowel in *made*, *bed* and *dead*, but a more open vowel in *fed*. The male speakers similarly all have a close vowel for both *bed* and *dead*.

Figure 3 shows a plot of the first two formants for the vowel in *bread*, *raid*, *red* and *grade* for the 34 female speakers. Measurement of this vowel is complicated by the preceding approximant [ɹ] which tends to cause both the second and third formants to be lowered (Ladefoged 2003: 151), and the effects of this continue to a certain extent into the vowel, but it was generally possible to find a consistent position to measure after the levelling of the second formant in all tokens. It can be seen from Figure 3 that once again we have two clearly distinct vowels, with the relatively close vowel at the top left and the more open vowel towards the bottom right. Furthermore, we can see that *bread* generally has an open vowel, while *raid* and *grade* have a close vowel. The quality of the vowel in *red* is more varied: For 25 of the speakers, it clearly belongs in the top left group, so *red* rhymes with *grade* and is a homophone of *raid*. However, for 9 speakers, it belongs with the more open vowel, and so *red* rhymes with *bread*, as would be expected in most other varieties of English. Of these 9 speakers, one is the same Malay subject who has an open vowel in *egg* and *bed*, but the other 8 are all Chinese, including the Chinese subject who has an open vowel

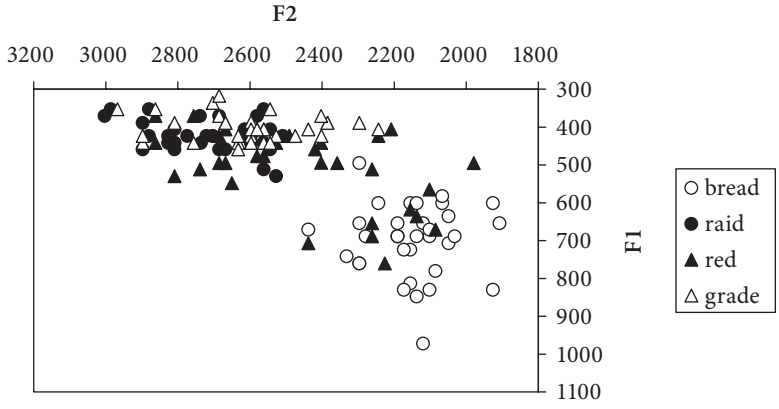

Figure 3. Plot of the first two formants for the vowel in *bread*, *raid*, *red* and *grade* for the 34 female subjects.

Table 1. Realization of the front vowels in SgE. The indeterminate status of *red* is indicated by placing it in brackets.

Vowel	Words
I	*sit*, *seat*
e	*vague*, *made*, *grade*, *egg*, *bed*, *dead*, (*red*)
ɛ	*peg*, *beg*, *fed*, *bread*, *bag*, *bad*

in *bed*. Of the males, two (one Malay and one Chinese) have an open vowel in *red*, and the other two have a close vowel in *red*.

In conclusion, it seems that the overwhelming majority of Singaporeans have a close vowel in *egg*, *bed* and *dead*, but a more open vowel in *beg*, *peg*, *fed* and *bread*. The status of *red* is more indeterminate, with most speakers having a close vowel but between a quarter and a third of them having an open vowel. Furthermore, there is little evidence of variation between the ethnic groups: The single Indian subject patterns with the majority, and only one Malay subject differs from most of the other speakers.

It has previously been suggested that, for those Singaporeans who have no length distinction in their vowels, there may be three front vowels (Bao 1998, 2001), and these might be represented as /i, e, ɛ/ (Deterding and Poedjosoedarmo 1998). It seems that, for speakers such as these, the words pattern as in Table 1. Note that there seems to be no straightforward way to predict which vowel some words will have on the basis of BrE or any other external variety of the language.

Bao (2001: 77) claims that words ending with a voiced consonant (such as *bed* and *beg*) have a close vowel, while those ending with a voiceless consonant have an open vowel. While his observation may be accurate for words with a final voiceless consonant, and it also seems to be accurate for *bed*, the data presented here indicate that some words ending in a voiced consonant, including *beg*, *fed* and *bread*, have an open vowel and not the predicted close vowel.

4. The vowel in *won* and *one*

It is well known that Singaporeans tend to have /ʌ/ in *want* (Brown 1999: 235, Deterding and Poedjosoedarmo 1998: 157). However, though some further words that begin with /w/, such as *what*, also have /ʌ/, others, such as *wash* and *watch*, have /ɒ/ (Brown 1999: 235). Here we will investigate the vowel after /w/ by comparing the pronunciation of *won*, *one*, *want* and *wonder*.

Measurement of the vowel in words like *want* and *won* is problematical, partly because the initial /w/ causes a sharp dip in the second formant (Ladefoged 2003: 148) and it is not easy to find a clear boundary between this initial approximant and the following vowel, and partly because the vowel undergoes anticipatory nasalization under the influence of the following /n/ and acoustic measurement of nasalized vowels is not easy. The problem of nasalization is particularly severe because the measurements were made using linear-prediction-based formant tracks overlaid on digital spectrograms (derived using Multispeech software from KAY), and the linear prediction algorithm does not work well for nasalized vowels (Ladefoged 2003: 137, Johnson 2003: 100). Therefore the acoustic measurements were supplemented by auditory evaluation, by listening to the tokens of *one* with *won* in quick succession, and also by comparing *want* with *wonder* in a similar fashion. In each case, if the vowel in the two words was perceived to be different, the more back vowel was classified as /ɒ/ and the less back vowel as /ʌ/.

Figure 4 shows a plot of the first two formants for the vowel in *won*, *one*, *want* and the first syllable of *wonder* for all the tokens of the female speakers where reasonable measurements could be derived. There appears to be a group of tokens on the right, all of which have a second formant lower than 1400 Hz, and we might classify these relatively back vowels as /ɒ/, while the remaining vowels are /ʌ/. On this basis, all the tokens of both *one* and *wonder* have /ʌ/, all but two tokens of *want* have /ʌ/, and some of the tokens of *won* have /ɒ/, while others have /ʌ/.

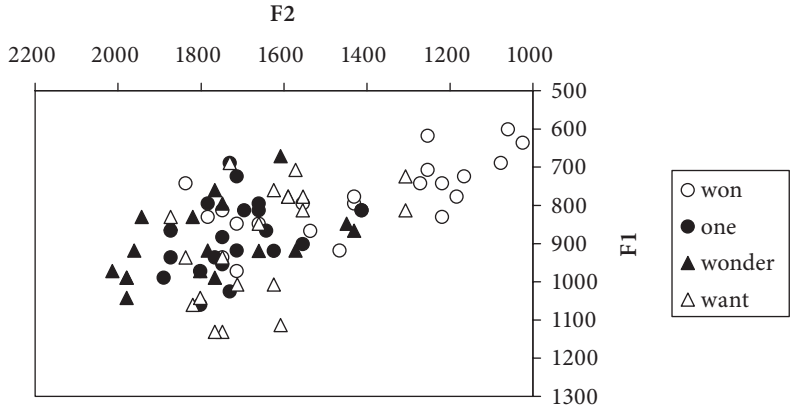

Figure 4. Plot of the first two formants for the vowel in *won*, *one*, *want* and the first syllable of *wonder* for all the tokens of the female subjects for which measurements were possible.

Table 2. Number of speakers who used /ʌ/ and /ɒ/ for various words beginning with /w/.

	/ʌ/	/ɒ/
won	14	24
one	38	0
wander	37	1
want	36	2

The classification of all the tokens on the basis of examination of spectrograms supplemented by careful listening is shown in Table 2. Nearly all the speakers have /ʌ/ in *one*, *wonder* and *want*, and a majority but certainly not all have /ɒ/ in *won*. Both the speakers who have /ɒ/ in *want* are Chinese females, and one of these is the same speaker who has an open vowel in both *bed* and *red*.

One might note that the tendency to have /ɒ/ in *won* but /ʌ/ in *one* is the exact reverse of the growing tendency in BrE. Wells (2000: 533) reports that 30% of RP speakers now prefer /wɒn/ instead of the traditional /wʌn/ for *one*, and the fact that this preference is strongest among young speakers suggests that a change is taking place, possibly as an influence from Northern pronunciation (Wells 1999: 38). But for *won,* only /wʌn/ is possible in RP (unless the word is referring to a unit of Korean currency) (Wells 2000: 856).

5. The vowel in *poor* and *pure*

Roach (2000: 21) describes the /ʊə/ vowel as "increasingly rare", as many speakers replace it with /ɔː/. Wells (2000: 592) reports that 57% of his British respondents prefer /pɔː/ to /pʊə/ for the pronunciation of *poor*, and also that the preference is over 80% for young people. For *sure*, the preference for /ɔː/ is only 46%, but again, as most young people prefer /ʃɔː/ over /ʃʊə/, it is shown as the first pronunciation (Wells 2000: 752). Clearly /ɔː/ is fast becoming the norm in these words in Britain. Here, we will investigate the vowel in *tour*, *poor* and *sure* in SgE. We will also consider the pronunciation of *cure* and *pure*, where the vowel is preceded by /j/.

Acoustic measurement of the vowel in all these words was found not to be reliable. Ladefoged (2003: 114) discusses problems in estimating the location of the first two formants in a word with a rounded back vowel such as *caught*, and even when the formants can be clearly identified, the interpretation of the second formant is not straightforward, as it is affected both by backness and lip

Table 3. Number of speakers who used /ʊə/ and /ɔː/ for *tour, poor, sure, cure* and *pure*.

	/ʊə/	/ɔː/
tour	35	3
poor	34	4
sure	33	5
cure	3	35
pure	3	35

rounding (Ladefoged 2001: 176). Furthermore, the formants for the vowels in *cure* and *pure* are substantially affected by the preceding /j/, which adds considerably to the problems. Therefore, classification of the vowel for all these words will rely on auditory judgements. Table 3 shows the incidence of /ʊə/ and /ɔː/ in the five words under investigation.

Clearly, there is a strong preference for /ʊə/ in *tour*, *poor* and *sure*. Two speakers, both of them Chinese females, have /ɔː/ in all three words, and one of these is the same speaker who has /ʋ/ in *want* and an open vowel in *bed* and *red*. It is possible that this speaker is quite strongly influenced by British pronunciation.

There is an equally clear preference for /ɔː/ in *cure* and *pure*. Two Chinese females have /ʊə/ in both these words, but these are not the same speakers who have /ɔː/ in *tour*, *poor* and *sure*.

We might note that the strong preference in Singapore for /ʊə/ in *poor* but /ɔː/ after a preceding /j/ in *pure* is the exact inverse of the pattern in Britain, where /ʊə/ is still usually retained after /j/ (Cruttenden 2001: 145). We might further note that the emerging British pattern results in a number of homophones (e.g. *tour*/*tore*, *poor*/*paw* and *sure*/*shore*), while the Singapore pattern does not, as there is no possibility of /kjɔː/ or /pjɔː/ merging with another word. It is simply not true that the features of pronunciation found in SgE always result in the loss of distinctions that are maintained elsewhere, as here we have instances where Singaporean speakers maintain traditional distinctions that have been lost for many speakers in Britain. Or, to put it in another way, one can predict the British pronunciation of these words from the Singaporean pronunciation, but not the other way round.

6. The vowel at the start of *absorb* and *abroad*

It is often stated that SgE has fewer reduced vowels than other varieties of English (Tay 1982: 141, Brown 1988a: 118, 1999: 210, Deterding and Poedjosoedarmo 1998: 155), and recent experimental work has confirmed this (Low *et al.* 2000). However, that does not mean that Singaporean speakers never use a schwa. Heng (2003) showed that, although words beginning with *con* do indeed tend to have a full vowel in Singapore, many polysyllabic words have a schwa in the first syllable, particularly those spelled with an <a>. Here we will investigate the vowel in the first syllable of *consultant* and *consist*, both of which begin with *con* and also *adapt*, *according*, *tradition*, *abroad*, *adventure*, *absorb*, *attack* and *afford*, all of which are spelled with an <a> in the first syllable. All of these words are listed with a schwa in their first syllable in Wells (2000).

Acoustic measurement of reduced vowels is inevitably difficult. Not only is there the problem of anticipatory nasalization (discussed above) affecting words beginning with *con*, but also in some instances a schwa is absorbed by neighbouring sounds (Shockey 2003: 22). And even when there is a clear vowel, it is often so short that reliable measurement is difficult. We will therefore rely on auditory judgements. Heng (2003) showed that auditory judgement of full and reduced vowels is quite reliable for SgE.

Table 4 shows the auditory classification of the vowel in the first syllable of the ten words under investigation for all 38 speakers. This clearly confirms that Singaporeans do sometimes use a schwa. In fact, for three of the words, *according*, *abroad* and *afford*, every single speaker uses a schwa, and for all ten of the words investigated, there are some instances of a schwa.

Table 4. Incidence of reduced vowels and full vowels in the first syllable of polysyllabic words.

	/ɛ/	/ə/	/ɒ/
consist		17	21
consultant		20	18
absorb	29	9	
adventure	24	14	
tradition	13	25	
attack	9	29	
adapt	7	31	
according	0	38	
abroad	0	38	
afford	0	38	

For the two words beginning with *con*, 47% of the tokens have a schwa. This is much higher than the value reported by Heng (2003), who found that just 8% of such words have a schwa in her study of conversational SgE. This is presumably because, in a formal speaking style such as when they are reading a list of sentences, these speakers tend to adopt a variety of speech that approximates to the standard, and this includes the use of more reduced vowels. But note that this contrasts with other varieties of English, where fewer reduced vowels would be expected in formal speaking styles.

For the words with <a> in the spelling, there is a sharp contrast between the first two words and the others: In *absorb* and *adventure*, the majority of the tokens have a full vowel, but every single token of *abroad*, *according* and *afford* has a schwa. In order to derive a hypothesis to explain this pattern, we need to consider syllable structure. Note that in *absorb* the word-medial /b/ belongs with the first syllable, as the consonant cluster /bz/ is not a possible syllable onset. In contrast, for *abroad* the /b/ belongs with the second syllable, as /br/ is a perfectly reasonable syllable onset. This means that the first syllable of *absorb* is closed (it has a coda), while the first syllable of *abroad* is open (it has no coda). Similarly, with *adventure*, there is a coda /d/ closing the first syllable, as /dv/ is not a possible syllable onset, but there is no coda in the first syllable of *according* or *afford*, as the medial /k/ and /f/ both belong with the second syllable. So it seems that, in SgE, closed syllables are more likely to have a full vowel than open syllables.

Although only just over half of the tokens beginning with *con* have a full vowel in these data, in less formal conversational data we would expect far

Table 5. Incidence of reduced vowels and full vowels in the first syllable of polysyllabic words for the different ethnic groups.

	Chinese		**Malay**		**Indian**	
	full	reduced	full	reduced	full	reduced
consist	16	14	4	3	1	0
consultant	15	15	2	5	1	0
absorb	21	9	7	0	1	0
adventure	20	10	3	4	1	0
tradition	13	17	0	7	0	1
attack	6	24	2	5	1	0
adapt	7	23	0	7	0	1
according	0	30	0	7	0	1
abroad	0	30	0	7	0	1
afford	0	30	0	7	0	1

more instances of full vowels. And as *con* is a closed syllable, this confirms the tendency for closed syllables to have full vowels.

The incidence of full and reduced vowels for the different ethnic groups is shown in Table 5. Although there is a slightly larger proportion of full vowels for the Chinese (33%) than the Malays (26%), the overall pattern appears to be similar for the two groups, and also for the single Indian speaker.

7. Vowel duration in *cease*, *seize* and *seas*

It has been observed that a distinction between voiced and voiceless word-final consonants is often not maintained in Singaporean speech (Tay 1982: 142, Bao 1998: 161). One problem here is that it is normal in all varieties of English for word-final voiced consonants to become devoiced (Docherty 1992: 35), and so the distinction between pairs such as *cease* /siːs/ and *seize* /siːz/ is usually maintained not by actual voicing of the final consonant but by means of the duration of the vowel, as vowels before voiceless consonants are generally shorter (Roach 2000: 50). Low and Brown (2005: 131) observe that this kind of allophonic vowel length distinction which can provide clues to the voicing of a final consonant is largely absent in SgE. Here, we will investigate the issue further, to find out the extent to which *cease* and *seize* are homophones.

Koh (2002) reported that there is indeed a tendency for no distinction to be maintained between words such as *cease* and *seize*, but he suggested that there may be a distinction between pairs such as *seize* and *seas* where the former is a single morpheme while the latter has a plural *-s* suffix. This kind of distinction, where the pronunciation of a word depends on its morphological structure, has been noted in other varieties of English, particularly in Scottish English where the length of a vowel before a final /d/ depends on whether the /d/ is a separate morpheme or not (McMahon 2000: 192), and it is of some theoretical consequence, as it means that the phonological structure of a language cannot be completely independent of the other components. Here, we will see whether the vowel in *seize* is the same duration as that in *seas* and *sees*.

The average duration of *cease*, *seize*, *sees* and *seas* is shown in Table 6. There is a small significant difference between the duration of the vowel in *cease* and *seize* ($t = 2.60$, $df = 37$, $p < 0.05$, paired-sample, one-tailed), which indicates that at least some Singaporean speakers make a distinction. Table 7 shows that 21 of the 38 speakers pronounce the vowel in *seize* at least 15 msec longer than that in *cease*, while for 6 speakers, *seize* is actually shorter than *cease* by at least

Table 6. Average duration of the vowel in *cease*, *seize*, *seas* and *sees* for all the Singaporean speakers.

	duration (msec)
cease	140
seize	156
seas	182
sees	162

Table 7. Total number of speakers who make *seize* at least 15 msec longer or shorter than *cease*, according to ethnic group.

	seize* > *cease	**same duration**	***seize* < *cease***
Chinese	18	9	2
Malay	3	2	3
Indian	0	0	1
Total	21	11	6

15 msec, and for the remaining 11 speakers, the vowels in the two words have a duration within 15 msec of each other. (In comparison, all the British speakers pronounced *seize* with a vowel at least 15 msec longer than *cease*.) It appears that, while the majority of the speakers do make a distinction between these two words, a substantial minority do not.

The breakdown according to ethnic group is also shown in Table 7. Although there seems to be a greater tendency for Malay speakers not to make a distinction between *seize* and *cease*, the numbers are too small to draw any firm conclusions, and it is certainly true that some speakers in all ethnic groups do not maintain this distinction.

Looking once more at Table 6, we can see that *seas* on average is substantially longer than *seize* ($t = 3.38$, $df = 37$, $p < 0.01$, paired-sample, one-tailed) while *sees* is not ($t = 1.20$, $df = 37$, ns, paired-sample, one-tailed). It is hard to provide an explanation of why a plural *-s* suffix results in a longer vowel but a 3rd person singular *-s* verbal suffix does not. However, we should note that the British speakers exhibit a similar pattern, with *seas* somewhat longer than *sees*, so there must be something in the structure of the two sentences (repeated below) that causes this.

(5) The man who led that raid maybe sees the result.
(8) The consultant fled across the seas in July.

Table 8. Average duration of the vowel in *race*, *raise* and *rays* for all the Singaporean speakers.

	duration (msec)
race	184
raise	189
rays	196

One might hypothesize that there could be phrase-final lengthening on *seas* in sentence 8 because the word is followed by an adverbial, but there is no such phrase-final lengthening in sentence 5 where the verb *sees* is followed by its direct object. It seems that, even with sentences that have carefully matched rhythm such as these, the matching is not sufficiently close to allow a direct comparison of *seize* with *seas* and *sees*.

The average duration of the vowel in *race*, *raise* and *rays* is shown in Table 8. There is little evidence for a durational difference between these words, but in fact, two of the British speakers also do not maintain a difference between *race* and *raise* in these sentences, so it would be inappropriate to draw too many conclusions here, especially given the caveat outlined above regarding problems in achieving matched sentence structure. This issue needs to be investigated further, possibly using simple word lists that avoid issues of rhythm and sentence structure.

8. Discussion

In the early descriptions of SgE (e.g. Tongue 1979), it was assumed that English speakers in Singapore ranged from basilectal through mesolectal to acroletal, and that the pronunciation of acrolectal speakers approximated a British RP accent. Similarly, with her model of expanding triangles, Pakir (1991: 174) asserted that, at least in formal situations, well-educated Singaporeans speak a variety of English that is "almost no different from the variety used by knowledgeable speakers of English elsewhere".

On the basis of such models, one would assume a range for the pronunciation of words such as *egg*, so that even if some speakers use a local variant, others are likely to pronounce the word in the same way as speakers of standard Englishes in other parts of the world. However, even though there is a range of speakers in the current study including some who have excellent English, it was found that nearly all of them have the same close vowel in *egg*, *bed* and

dead as in *vague* and *made*, while they use a more open vowel in *beg*, *peg*, *fed* and *bread*. The consistency of this result among the speakers studied here suggests that a standard Singaporean pronunciation is emerging, a style of speech that is quite independent of any external standard, and furthermore that some aspects of it are idiosyncratic in that they cannot be predicted by reference to BrE or any other external variety. It is possible that this degree of homogeneity in Singapore pronunciation has emerged in the two decades since Tay (1982) conducted her study, as she specifically stated varying pronunciation for *bed* and *dead*. Schneider (2003) has outlined five stages in the emergence of a New English, and the fourth stage, labelled "endonormative stabilization", involves "the gradual adoption and acceptance of an indigenous linguistic norm" (249). It seems that, as Schneider asserts, SgE is now in this fourth stage.

Schneider (2003) further suggests that the fifth stage of development involves differentiation. The fact that there is little evidence for variation between the ethnic groups in the data analysed here indicates that, at least for vowels, the emerging standard in Singapore may not (yet) be differentiated. However, it has previously been shown that Singaporean listeners can determine the ethnicity of a speaker on the basis of just ten seconds of speech (Deterding and Poedjosoedarmo 2000). One might conclude, therefore, that this ability to differentiate the ethnic group of the speaker is not on the basis of the vowels, and this is consistent with the claim of Lim (2000) that the inter-ethnic differences lie mainly in intonation and also the finding of Tan (2003) that the ethnic groups differ substantially in the acoustic realization of stress.

Other consistent features of the emergent Singapore standard suggested by the current study are: use of /ʌ/ in *want*, /ʊə/ in *tour*, *poor* and *sure* but /ɔː/ in *cure* and *pure*, and a reduced vowel in the first syllable of *abroad*, *according* and *afford* but a full vowel in some other words. Although the pattern of full vowel versus reduced vowel in the first syllable of some polysyllabic words is variable, the underlying rule that closed syllables are more likely than open syllables to have a full vowel appears to be consistent across all varieties of SgE.

One might finally note that any attempt (e.g. Melchers and Shaw 2003: 166) to describe the vowels of SgE using a standard set of lexical items such as that proposed by Wells (1982: 123) will only have limited accuracy, because the DRESS vowel has two separate realizations. It seems that new varieties of English such as that of Singapore do not always fit too well into frameworks designed for the description of the older varieties.

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