

Ethnic identification and the DRESS and TRAP vowels in Brunei and Singapore English

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Abstract

An identification test was carried out to determine whether 35 undergraduates of Universiti Brunei Darussalam were able to distinguish the nationalities and ethnicities of speakers of Brunei English and Singapore English. The participants found it easier to identify the speakers of Brunei English, especially the male speakers, than the speakers of Singapore English. Also, the participants managed to identify the speakers' ethnicities more accurately than their nationalities, and again they were more successful in this task for the male speakers than the females. This paper also compares the measurements of the DRESS and TRAP vowels for Bruneian and Singaporean speakers. Results show that most speakers of both varieties of English do not distinguish the two vowels, but the Bruneian females do.

Introduction

In recent years, there have been a number of studies where researchers have discussed the possibility of an emergence of a regional Lingua Franca in Southeast Asia, including Brunei and Singapore (Deterding & Kirkpatrick, 2006). This is because several varieties of English in the region have similar pronunciation features. For this paper, the pronunciation features of Brunei English and Singapore English will be considered. The first part of this paper will look into identification of the nationality and ethnicity of speakers in Brunei and Singapore, while the second part considers the pronunciation of open front vowels, to see whether differences in the DRESS and TRAP vowels might contribute to a distinction between the two varieties.

Ethnic Identification

In Brunei, the largest ethnic group are the Malays (66%) whereas Chinese (10%) are the second largest (Brunei Demographics Profile 2016, 2016). There have been a number of studies in Brunei that focused on the pronunciation features of each ethnic group. Ishamina (2011) conducted a study in which she investigated whether a group of undergraduates from Universiti Brunei Darussalam could identify the ethnicities of speakers, either Malay or Chinese, of speakers based on ten-second long extracts from a read passage. She found that the listeners were able to identify the ethnicities of the speakers quite well, with an accuracy rate of 74%, but there was no significant difference between the success rate for identifying Malay or Chinese speakers.

There have also been similar studies conducted in Singapore. In Singapore, the largest ethnic group are the Chinese (74%) and the second largest are the Malays (13%) (Singapore Demographics Profile 2016, 2016). Deterding and Poedjosoedarmo (2000) conducted an identification test to determine whether listeners were able to identify the ethnicities of speakers correctly, based on recordings of both conversational and read speech. For the conversational speech, results showed that the listeners were able to identify the ethnicities (either Chinese or Malay) of the speakers with an accuracy rate of just over 90%. However,

for the read speech, the accuracy rate for identifying the Chinese was 71% and for the Malays it was just 61%.

Deterding (2007) also conducted an identification test in which listeners had to determine the ethnicities (Chinese, Malay or Indians) of speakers of Singapore English based on recordings of a read passage. It was found that Chinese speakers were identified most accurately (94%), Malays came in second (86%) and Indians (57.5%) were identified least accurately. It is unclear why the results for the Chinese and Malays are higher than in the earlier study.

For this paper, an identification test was carried out based on short extracts of conversational speech of speakers of both Brunei and Singapore English, and listeners had to identify whether the speakers are Bruneian or Singaporean and also Malay or Chinese.

Vowel Quality

One prominent pronunciation feature in Brunei and Singapore English that researchers have focused on is vowels, especially the /e/ and /æ/ vowels, or the DRESS and TRAP vowels respectively, using the lexical keywords proposed by Wells (1982).

Mossop (1996) conducted one of the earliest studies involving vowels in Brunei English, and he reported that there was a tendency for Brunei English speakers not to distinguish between words with the DRESS and TRAP vowels. For example, the pronunciation of words like ‘met’ and ‘mat’ were not distinguished. Mossop (1998, p. 32) explained that this was because Malay does not have an open front vowel such as /æ/.

This tendency of not distinguishing the DRESS and TRAP vowels was later confirmed by Salbrina (2006). However, when Salbrina (2010, p. 47) conducted a similar study, she found no evidence to confirm this merger. She reported that, as a whole, the TRAP vowel was significantly more open than the DRESS vowel despite some instances where both vowels were not distinguished. This was also the case when Deterding and Salbrina (2013, p. 36) conducted a similar study on vowels, as they found that the TRAP vowel tended to be more open than the DRESS vowel.

There have also been a number of studies on the vowels of Singapore English speakers. Suzanna and Brown (2000, p. 90) compared the DRESS and TRAP vowels of Singapore English speakers, and they found that the distinction between the two vowels was not maintained, especially in conversational speech. Deterding (2007) also conducted a study on the vowels of the different ethnic groups in Singapore, and he found that these two vowels were pronounced rather similarly. Other studies on the DRESS and TRAP vowels of Singapore English, such as those conducted by Deterding (2003), Lim (2004) and Leimgruber (2011), have also yielded similar findings.

For this paper, further in-depth investigation is done on the comparison between the DRESS and TRAP vowels of Brunei English speakers and Singapore English speakers using conversational speech. The quality of the vowels will also be considered when analysing the identification of the nationality of the speakers.

Data

The data for this study involve recordings of 30 undergraduates from Universiti Brunei Darussalam and 30 undergraduates from the National Institute of Education, Singapore. For both Brunei and Singapore speakers, 15 are female and 15 are male. The recordings for the 30 Bruneians are part of the Universiti Brunei Darussalam Corpus of Spoken Brunei English, or UBDCSBE (Deterding & Salbrina, 2013), while the recordings for the 30 Singaporeans are from the National Institute of Education Corpus of Spoken Singapore English, or NIECSSE (Deterding & Low, 2005). The majority of the Brunei English speakers are Malay while the majority of the Singapore English speakers are Chinese. Table

1 and Table 2 show the breakdown of the ethnicities of the speakers of Brunei English and Singapore English respectively. For the Bruneian males, under ‘others’ there is one of Tutong and Iban ethnicity each. For the Singaporeans, there is one male Indian and one female Sikh, also categorised as ‘others’.

Ethnicity	Female	Male	Total
Chinese	6	4	10
Malay	9	9	18
Others	-	2	2
Total	15	15	30

Table 1. Ethnicities of Brunei English speakers

Ethnicity	Female	Male	Total
Chinese	11	14	26
Malay	3	-	3
Others	1	1	2
Total	15	15	30

Table 2. Ethnicities of Singapore English speakers

The recordings of all the speakers consist of five-minute interviews conducted by the same British academic. The interviews for the Brunei English speakers were recorded between 2007 and 2010, while those for the Singapore English speakers were recorded between 2001 and 2005. The interviews were conducted in the academic’s office, and all began with the question ‘what did you do during your last vacation’. The recordings were directly on to a computer and saved in .wav format.

Identification

The identification test was conducted to determine whether Bruneians are able to distinguish whether the speakers are Bruneian or Singaporean as well as their ethnicities, either Malay or Chinese. The participants involved in this test were 35 Bruneian undergraduates from the Universiti Brunei Darussalam (UBD) enrolled in an introductory module entitled ‘Introduction to English Language and Linguistics’. As it was not reasonable to ask them to listen to all 60 speakers of Brunei and Singapore English, 12 speakers with a balance of nationalities, ethnicities, and genders were chosen. The participants’ task was to identify the nationalities and ethnicities of the six speakers of Brunei English and six speakers of Singapore English based on a 10-second extract from their recordings. These extracts were chosen carefully so as to not give away any potential indications of the speakers’ nationality or ethnicity. For example, an extract of a Bruneian speaker was not chosen, as it is involving her talking about going for a holiday overseas to Singapore, something that a Singaporean would not say. Of the six speakers from each variety, three are Malay and three are Chinese. Overall, the participants had to identify the nationalities (either Bruneian or Singaporean) and the ethnicities (either Malay or Chinese). A copy of the question sheet which they completed can be found in Appendix A. Table 3 below shows several information of the 12 speakers. The ‘F’ and ‘M’ in the ‘Speakers’ section represent the sex of the speakers, either ‘female’ or ‘male’ respectively. In total, there were six Singaporeans and six Bruneians, with three Malays and three Chinese for each nationality. Of the six Bruneians, two are female and four are males. For the Singaporeans, four are female, two are male.

Speakers	Nationality	Ethnicity
F1	Singapore	Malay
F2	Singapore	Malay
F3	Brunei	Chinese
F4	Singapore	Chinese
F5	Singapore	Malay
F6	Brunei	Malay
M1	Brunei	Malay
M2	Brunei	Chinese
M3	Brunei	Chinese
M4	Singapore	Chinese
M5	Brunei	Malay
M6	Singapore	Chinese

Table 3. Details of the speakers.

35 participants took part in this identification test, and as they were asked to try and identify 12 speakers, in total there are 420 responses for nationality and 420 for ethnicity. The breakdown of the results of identifying the nationalities of the speakers can be seen in Table 4. Overall, the participants managed to identify 58.6% (246 out of 420) of the nationalities of the speakers correctly. Table 4 also shows how the participants have a greater ability to identify the Bruneian speakers than the Singaporean speakers. They guessed 136 out of 210 (64.8%) of the Bruneians correctly, but only 110 out of 210 (52.4%) of the Singaporeans, which is almost at the level of chance. It can be concluded that they tended to hear more Singaporeans as Bruneians (100), and they heard fewer Bruneians as Singaporeans (74), when comparing the two.

Nationalities of Speakers	Identified As	
	Bruneian	Singaporean
Bruneian	136	74
Singaporean	100	110

Table 4. Results of identifying nationalities of the speakers.

Table 5 displays the results of identifying the nationalities of the speakers by gender. It shows that the nationality of the males is recognised more accurately than that of the females. In fact, the nationality of less than half of the females was identified correctly. This suggests that males are developing more of a distinctive national accent than females.

Gender of Speakers		Correct	Incorrect
Female	Brunei	45	25
	Singapore	56	84
	Subtotal	101	109
Male	Brunei	91	49
	Singapore	54	16
	Subtotal	145	65

Table 5. Results of identifying nationalities of the speakers by gender.

Table 6 shows the results of identifying the ethnicities of the speakers. The participants managed to identify 77.6% (326 out of 420) of the ethnicities of the speakers correctly, which shows that the participants have a greater ability to identify the speakers' ethnicities than their nationalities. This suggests that the ethnicity of speakers is more salient in their

pronunciation than their nationality, and it questions the extent to which distinctive national accents such as Brunei English and Singapore English exist, so it raises questions about the validity of the Three Circles model of English (Kachru, 1985) which is based on distinct national varieties. Jenkins (2009) has raised similar doubts, and she criticises Kachru's model for categorising the countries in each circle based on their geographical and historical background rather than the speakers' actual use of English.

Ethnicity of Speakers	Identified As	
	Malay	Chinese
Malay	162	48
Chinese	46	164

Table 6. Results of identifying the ethnicity of the speakers.

Table 7 shows the results of identifying the ethnicities of the speakers by gender. Similar to the results shown in Table 5, the ethnicities of the male speakers are identified more accurately than those of the female speakers, with a correct identification rate of 85.7% for males versus 69.5% for females.

Gender of Speakers	Ethnicity	Correct	Incorrect
Female	Malay	98	42
	Chinese	48	22
	Subtotal	146	64
Male	Malay	64	6
	Chinese	116	24
	Subtotal	180	30

Table 7. Results of identifying the ethnicity of the speakers by gender.

Table 8 and Table 9 show the breakdown of the results of identifying the ethnicities of Brunei English speakers and Singapore English speakers respectively. For the Brunei English speakers, the participants were able to identify the Malays more accurately than the Chinese. However, in Table 9, for the Singapore English speakers, the participants were able to identify the Chinese more accurately than the Malays. A full summary of the results of the identification test can be found in Appendix B. The fact that Brunei Chinese were often identified as Malays, and Singapore Malays were often identified as Chinese, suggests that the dominant ethnic groups in each country influences the minority, as Brunei Chinese sometimes adopt Malay features of pronunciation, and Singapore Malays sometimes sound Chinese. This confirms that ethnicity may be more important than nationality in influencing an accent.

Ethnicity of Speakers	Identification	
	Correct	Incorrect
Brunei Malay	99	6
Brunei Chinese	67	38

Table 8. Results of identifying the ethnicity of Brunei English speakers.

Ethnicity of Speakers	Identification	
	Correct	Incorrect
Singapore Malay	63	42
Singapore Chinese	97	8

Table 9. Results of identifying the ethnicity of Singapore English speakers.

Even if nationality is often identified incorrectly, listeners can still identify the nationality of male speakers reasonably accurately. In the next section, one feature of pronunciation will be investigated, to see if the realisation of open front vowels differs between Brunei and Singapore and if the pronunciation of these vowels might contribute to the perceived national identity of the speakers.

Analysis of DRESS and TRAP vowels.

The recordings were analysed with the help of spectrograms generated by the software Praat (Boersma & Weenink, 2017), which can enable the quality of vowels of the speakers to be estimated by measuring the frequencies of the first and second formants, F_1 and F_2 respectively. The first formant is used to show the open/close quantity of the vowels, while the second formant can represent the front/back quality (Ladefoged & Johnson, 2011, p. 196). The frequency of the first formant increases the more open a vowel is, while the frequency of the second formant increases the more front a vowel is. However, there is a limitation when looking at the relationship between the frequency of the second formant and the degree of backness of vowels. Ladefoged and Johnson (2011, p. 196) mention that there is an issue here because the degree of lip rounding as well as the height of vowels can affect the frequency of the second formant.

An illustration of the use of formant frequencies to represent vowel quality can be seen in Figures 1 and 2. Figure 1 shows a spectrogram of the token *test* as an instance of the DRESS vowel whereas Figure 2 shows a spectrogram of the token *back* as an instance of the TRAP vowel, both from the same female speaker. In Figure 1, it can be seen that the first formant is measured at 572 Hz whereas the second formant is measured at 2001 Hz, and for Figure 2, the first formant is measured at 873 Hz and the second formant is measured at 1618 Hz. The first formant of the token *test* (572 Hz) is considerably lower than the first formant of the token *back* (873 Hz), which reflects the fact that the vowel in this token of *back* is more open than the vowel in *test*. Furthermore, the measurements of F_2 indicate that the vowel in *test* is more front than that in *back*.

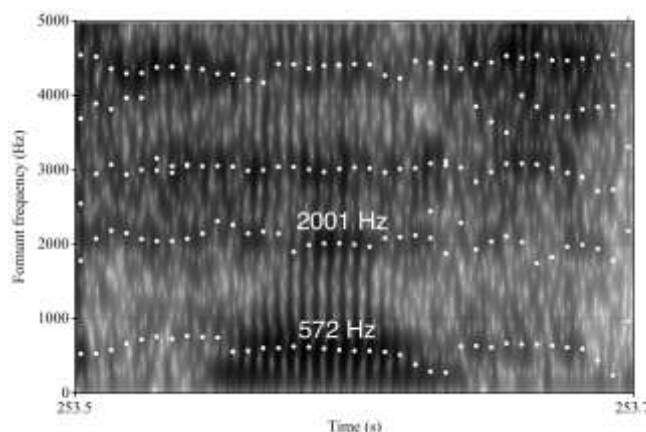


Figure 1. Spectrogram of the token *test*.

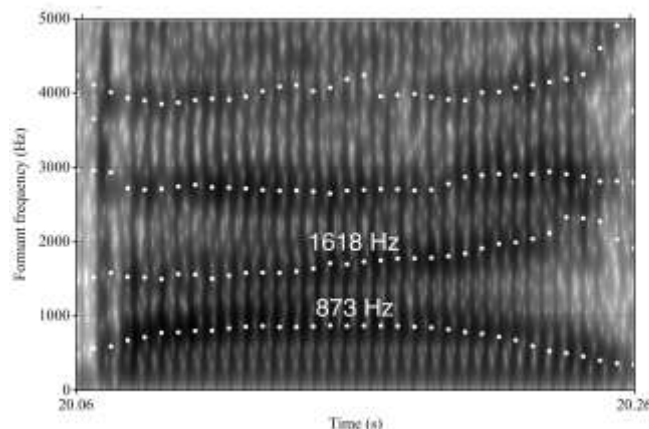


Figure 2. Spectrogram of the token *back*.

In order to create vowel plots, the frequency values were converted to an auditory Bark scale (Haywood, 2000, p. 141) using the formula below suggested by Zwicker and Terhardt (1980), where Z is the frequency in Bark and F is the frequency in Hertz.

$$Z = 13 \arctan(0.00076F) + 3.5 \arctan(F/7500)^2.$$

The values were then plotted on inverted scales of F_1 against F_2 , showing vowel quality in terms of the open/close and front/back dimensions (Deterding & Salbrina, 2013, p. 36). A Bark scale is used because when the frequency values have been converted, distances along the x-axis and y-axis are perceptually assumed to be equivalent (Ladefoged & Johnson, 2011, p. 197).

Ellipses enclosing 68% of all tokens were drawn using utilities developed by McCloy (2012) based on the R statistical software (R Core Team, 2017). Scatter plots were then generated comparing the distribution of TRAP and DRESS. Only the measurements of the DRESS and TRAP vowels are considered for this paper. In total 248 tokens of DRESS and TRAP vowels were measured for this study.

Results

The results from all the measurements are shown in Figures 2 to 5. In the plots, DRESS is labelled 'e' and TRAP is labelled 'æ'. Figures 3 and 4 show the plots for Brunei speakers.

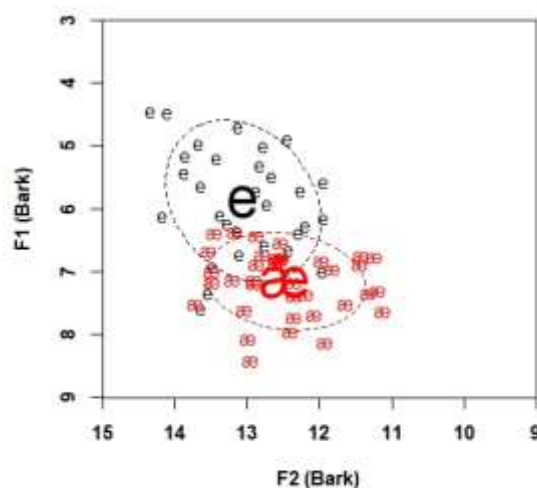


Figure 3. Scatter plots of female speakers of Brunei English.

Judging from the vowel plot for the female speakers of Brunei English in Figure 3, there is evidence of some overlap between the DRESS and TRAP vowels. However, it can be seen that the values for the DRESS vowels are generally more close and also a little more front than the TRAP vowels. This indicates that the majority of female speakers of Brunei English make a distinction between the pronunciation of the DRESS and TRAP vowels.

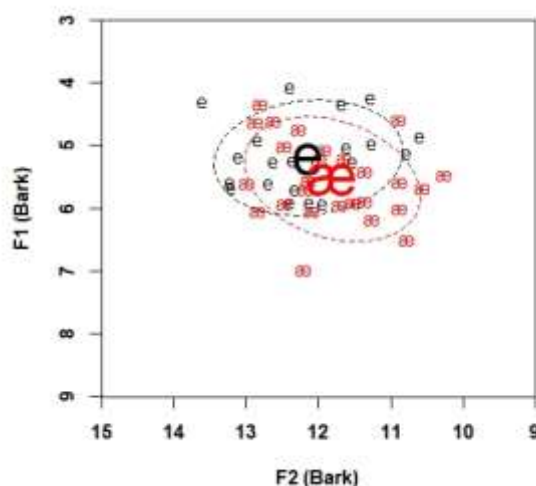


Figure 4. Scatter plots of male speakers of Brunei English.

In contrast, the plot for the male speakers of Brunei English in Figure 4 suggests that there is little differentiation between the DRESS and TRAP vowels.

Figure 5 shows the DRESS vowel and the TRAP vowel for the female speakers of Singapore English. There is evidence of some distinction between the pronunciations of the two vowels, but there is also considerable overlap. In contrast to Figure 3, we can conclude that female Bruneian speakers differentiate between DRESS and TRAP more than female Singaporeans.

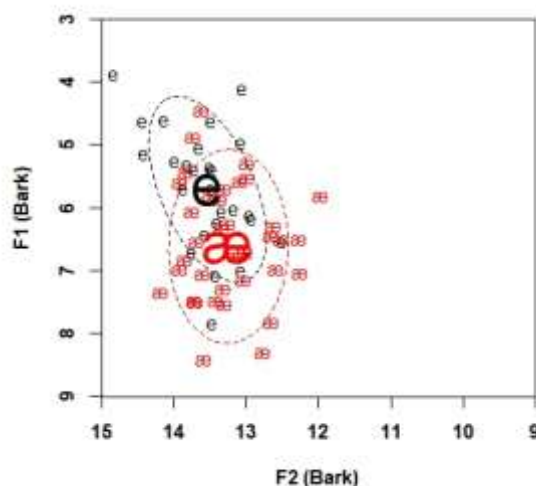


Figure 5. Scatter plots of female speakers of Singapore English.

Figure 6 shows substantial overlap between the pronunciations of the two vowels by male Singapore English speakers. Indeed, there is little evidence that Singapore male differentiate between these two vowels.

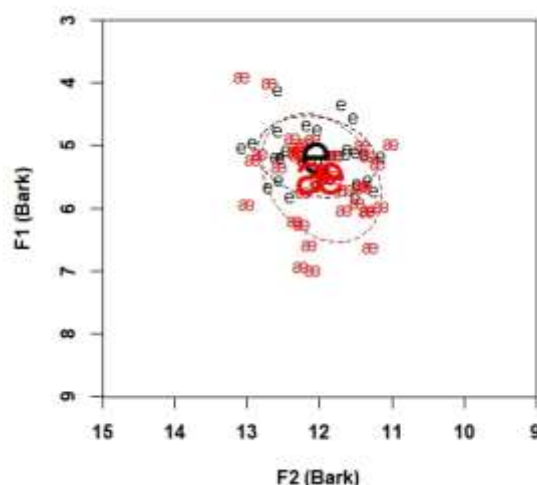


Figure 6. Scatter plots of male speakers of Singapore English.

Brunei versus Singapore

There is a more obvious differentiation of the DRESS and TRAP vowel by the female speakers of Brunei English compared to the female speakers of Singapore English. It also seems that female speakers of Singapore English may have a wider variation on the open/close dimension for the TRAP vowel.

For both sets of male speakers, there are clear indications of overlap between the pronunciation of the DRESS and TRAP vowels. It is possible that the plots for the male speakers of Singapore English are more clustered while those of the Brunei English are more dispersed, but in reality there is little difference.

Discussion

The results of the identification test indicate that the participants were mostly able to identify the nationality of the male speakers, but they could not identify the nationality of the females. For ethnicity, the listeners could identify nearly all the male speakers correctly, while they were less successful for the females. This suggests that male speech in Brunei and Singapore carries more national and ethnic flavour than female speech; and overall, ethnicity is more salient than nationality in the pronunciation of the speakers.

With the Brunei English speakers, there is evidence that there is a tendency to overlap the pronunciation of the DRESS and TRAP vowels in conversational speech, especially by the male speakers, whereas the female Brunei English speakers tend to differentiate the two vowels. The results for the male speakers are similar to the findings of Mossop (1998) and Salbrina (2006). In contrast, Salbrina (2010) and Deterding and Salbrina (2013) reported that the pronunciation of the TRAP vowel is more open than the DRESS vowel, and this is confirmed for the female speakers in this study. Judging from the scatter plots, it is evident that, despite some overlap in the pronunciation of the two vowels, for women, the TRAP vowel tends to be more open than the DRESS vowel.

The Singapore English speakers have a tendency to not distinguish the DRESS and TRAP vowels. This confirms the findings of previous studies by Suzanna and Brown (2000), Deterding (2003, 2007), Lim (2004) and Leimgruber (2011) on the vowels of Singapore English. It can also be said that the Singapore English speakers merge the pronunciations more than the Brunei English speakers.

In conclusion, it can be said that the vowels for the female speakers of the two varieties of English are different, as the Bruneians tend to differentiate the two vowels whereas the

Singaporeans do not, while the males from both places tend to merge the two vowels. Despite this difference between the female speakers and the similarity for the males, it is the male speakers that are identified more accurately, and hence why identification of speakers of the two varieties is unlikely to be based on the DRESS and TRAP vowels.

The listeners were able to identify the nationality of the male speakers reasonably well, so factors other than the quality of the DRESS and TRAP vowels, such as rhoticity, must be key, as many Bruneians have rhotic accents and most Singaporeans do not (Sufi, 2016).

Further research is also definitely needed in order to consider a wider range of data. For instance, an investigation on the impact of ethnicities of both speakers of varieties of English would be possible if there were more Chinese Bruneians and more Malay Singaporeans in the comparison of speech. More recent recordings, especially of the Singapore English speakers, could also add to the findings. We should note in this respect the recent shifts in pronunciation reported by Nur Raihan (2017), so it would be valuable to consider recent recordings of Singaporean speakers.

References

- Boersma, P., & Weenink, D. (2017). Praat: doing phonetics by computer, Version 5.4.22, retrieved from <http://www.praat.org/>
- Brunei Demographics Profile 2016. (2016). Retrieved from http://www.indexmundi.com/brunei/demographics_profile.html
- Deterding, D. (2003). An instrumental study of the monophthong vowels of Singapore English. *English World Wide*, 24(1), 1–16.
- Deterding, D. (2007). The vowels of the different ethnic groups in Singapore. In D. Prescott (Ed.), *English in Southeast Asia: Varieties, literacies and literatures* (pp. 2–29). Newcastle: Cambridge Scholars Publishing.
- Deterding, D., & Kirkpatrick, A. (2006). Emerging South-East Asian Englishes and intelligibility. *World Englishes*, 25(3/4), 391–409.
- Deterding, D., & Low, E. L. (2005) The NIE corpus of spoken Singapore English. In D. Deterding, A. Brown, & E. L. Low (Eds.), *English in Singapore: Phonetic research on a corpus* (pp. 1–6). Singapore: McGraw-Hill.
- Deterding, D., & Poedjosoedarmo, G. (2000). To what extent can the ethnic group of young Singaporeans be identified from their speech? In A. Brown, D. Deterding, & E. L. Low (Eds.), *The English Language in Singapore: Research on pronunciation* (pp. 1–9). Singapore: National University of Singapore.
- Deterding, D., & Salbrina, S. (2013). *Brunei English: A new variety in a multilingual society*. Dordrecht: Springer.
- Haywood, K. (2000). *Experimental phonetics*. Harlow: Longman.
- Ishamina A. (2011). Identification of Bruneian Ethnic Groups from their English Pronunciation. *South East Asia: A Multidisciplinary Journal*, 11, 37–45.
- Jenkins, J. (2009). *World Englishes: a resource book for students* (2nd ed). London: Routledge.
- Kachru, B. (1985). Standards, codification and sociolinguistic realism: the English language in the outer circle. In R. Quirk & H. G. Widdowson (Eds.), *English in the World: teaching and learning the language and literatures* (pp. 11–30). Cambridge: Cambridge University Press.
- Ladefoged, P., & Johnson, K. (2011). *A Course in Phonetics* (6th ed.). Boston: Wadsworth, Cengage Learning.
- Leimgruber, J. R. E. (2011). Singapore English. *Language and Linguistics Compass*, 5(1), 47– 62.

- Lim, L. (2004). Sounding Singaporean. In L. Lim (Ed.), *Singapore English: A grammatical description* (pp. 19–56). Amsterdam: John Benjamins.
- McCloy, D. (2012). Vowel normalization and plotting with the phonR package. *Technical Reports of the UW Linguistics Phonetics Laboratory*, 1, 1–8.
- Mossop, J. (1996). Some phonological features of Brunei English. In P. Martin, C. Ozóg, & G. Poedjosoedarmo (Eds.), *Language use and language change in Brunei Darussalam* (pp. 189–208). Athens, Ohio: Ohio University Press.
- Mossop, J. (1998). The interlanguage phonology of Brunei English. In U. Warotamasikkhadit & T. Panakul (Eds.), *Papers from the Fourth Annual Meeting of the Southeast Asian Linguistics Society* (pp. 21–36). Arizona State University, Program for Southeast Asian Studies.
- Nur Raihan, M. (2017). Rhoticity in Brunei English: A diachronic approach. *South East Asia: A Multidisciplinary Journal*, 17, 1–7.
- R Core Team (2017). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL <https://www.R-project.org>
- Salbrina, S. (2006). The vowels of Brunei English: An acoustic investigation. *English World-Wide*, 27, 247–264.
- Salbrina, S. (2010). The sounds of Brunei English – 14 years on. *Southeast Asia: A Multidisciplinary Journal*, 10, 39–56.
- Singapore Demographics Profile 2016. (2016). Retrieved from http://www.indexmundi.com/singapore/demographics_profile.html.
- Sufi, R. (2016). Rhoticity in Brunei and Singapore English. *Southeast Asia: A Multidisciplinary Journal*, 16, 129–137.
- Suzanna, H., & Brown, A. (2000). The [e] and [æ] vowels in Singapore English. In A. Brown, D. Deterding, & E. L. Low (Eds.), *The English Language in Singapore: Research on Pronunciation* (pp. 84–92). Singapore: Singapore Association for Applied Linguistics.
- Wells, J. C. (1982). *Accents of English*. Cambridge: Cambridge University Press.
- Zwicker, E., & Terhardt, E. (1980). Analytical expression for critical-band rate and critical bandwidth as a function of frequency. *Journal of the Acoustical Society of America*, 68, 1523–1525.

Appendix A

Comparison of Brunei and Singapore English

Sufi Redzwan

Age _____

Gender _____

Ethnic Group _____

Nationality _____

I am conducting this study for my MA thesis on the pronunciation of Brunei English and Singapore English. I will be playing 12 short recordings from speakers of Brunei and Singapore English, and for your part, identify whether each speaker is

- 1) Bruneian or Singaporean
- 2) Malay or Chinese

Please tick the appropriate boxes.

	Bruneian	Singaporean	Malay	Chinese
F1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Thank you.

Appendix B

Speakers	Nationality	Correct	Incorrect
F1	Singapore	14	21
F2	Singapore	11	24
F3	Brunei	16	19
F4	Singapore	20	15
F5	Singapore	11	24
F6	Brunei	29	6
Total		101	109
M1	Brunei	31	4
M2	Brunei	20	15
M3	Brunei	10	25
M4	Singapore	29	6
M5	Brunei	30	5
M6	Singapore	25	10
Total		145	65

Full results of identifying nationality of the speakers.

Speakers	Ethnicity	Correct	Incorrect
F1	Malay	28	7
F2	Malay	5	30
F3	Chinese	19	16
F4	Chinese	29	6
F5	Malay	30	5
F6	Malay	35	0
Total		146	64
M1	Malay	33	2
M2	Chinese	33	2
M3	Chinese	15	20
M4	Chinese	33	2
M5	Malay	31	4
M6	Chinese	35	0
Total		180	30

Full results of identifying ethnicity of the speakers.