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Acoustic Characteristics of Three Vowels of Standard Sri Lankan English

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Abstract: ***The phonology of Standard Sri Lankan English (SSLE) reflects a strong influence from the vernaculars of Sri Lanka: Sinhala and Tamil. This results in deviations from the donor colonial Standard British English pronunciation. This study provides measurements of formant frequencies in synchronically recorded sound data for six selected vowels, short and long monophthongs /ɔ/, /ɔ:/, /o/, /o:/ and /ɑ/, /ɑ:/ of SSLE. Evidence is compiled through formant readings of acoustic documentation from elicitations of ten female bilingual subjects. Of the ten bilingual subjects five have Sinhala and the rest Tamil as their first language while SSLE is their second language. Formant contoursare compared to parallel data in literature. Discriminant analysis showed that these SSLE vowels differ in terms of average frequencies of formants from Standard Southern British Englishand American English equivalents.***

Keywords: Sri Lankan English, pronunciation, acoustics, vowel formants

1. Introduction

According to the Optimality theory (Heinz et al., 2009[1]) universal grammar consists of a set of constraints, and language- specific grammars consist of different rankings of these constraints. Applying this to the contact setting of English in Sri Lanka it could be stated that codified endonorms of Standard Sri Lankan English (SSLE)pronunciation arise from the interaction between conflicting constraints between Standard British English (SBE) and the phonological grammars of the vernaculars Sinhala and Tamil. The three characteristics discussed below clearly signify unfaithfulness to the donor SBE pronunciation and Gunesekera (2005)[2] codifies them as characteristics of SSLEpronunciation.

1. The absence of /ɒ/;presence and the differentiation of the back vowels /ɔ/ and /o/.
2. The retreat of the SBEcentral mid /ʌ/and back /ɑ:/to central open position as /ɑ/ / ɑ/.
3. The retreat of the diphthong /əʊ/ to /o:/

This paper utilizes formant (A formant is a concentration of acoustic energy around a particular frequency in the speech wave.
http://ecconcord.ied.edu.hk/phonetics_and_phonology/wordpress/learning_website/chapter_1_introduction_new.htm)
contrast of vowels in acoustic documentation to provide evidence for the emergence of these characteristics. Hayes (2013)[3],]and Styler (2012)[4]set down the following as general rules of vowel formants:

i. Vowel height is inversely correlated to F1 thus higher the F1 value, the lower (more open) the vowel. Moreover F1 is controlled by the jaw.
ii. F2 denotes the frontness of the vowel. Back vowels have low F2 frequencies while front vowels have high F2 frequencies. F2 is controlled by the front-back movements of the tongue body.
iii. F3 indicates the exolabial quality of a vowel.Catford (1988: 150)[5] states that exolabial rounding involves vertical compression of the corners of the mouth, 'leaving a small central channel between the lips, of a slit-like flat elliptical shape rather than actually round. According to Ladefoged (2006: 188)[6] 'lip rounding is generally characterized by the lowering of the second and third formants. Lindblom and Sundberg (1971)[7] state that F3 is also controlled by the tongue blade elevation which opens a cavity under the tongue blade and returns a low F3.

Identifying the importance of Documentary Linguistics Himmelmann (2006: 15)[8] states that its main focus concerns the collection and analysis of an array of primary language data (Also see Widyalankara (2014)[10] for an acoustic analysisof characteristics which give rise to dialectal variation in Sri Lankan Englishpronunciation). In the context of this paper data collection and analysis consist of systematic recording, annotation and acoustic scrutiny of the spoken language samples collected from participants. According to Tench (1996)[9] the researchers must first, study a contrastive overlay of the two pronunciation systems, to determine asymmetry. Then they should record several subjects reading a list of words that contain the potential problems arising through this asymmetry. This study fulfills both requirements.

2. Methodology

2.1 Participants

The research consists of acoustic documentation of English word elicitations from 10 participants and the selection procedure was purposive sampling. A linguistic profile was constructed for 30 participants: 15 with Sinhala as first language (L1), 15 with Tamil as L1. Thus they diversified in their first languages Sinhala and Tamil. A questionnaire obtained self-evaluated rating of proficiency in the second language(L2) of the 30 participants through a Likert scale. Age of exposure was obtained for maintaining uniformity of span. As gender influences formant settings (Deterding, 2000[11];Kent, 1997[12]) all participants were female and Standard Southern British English (SSBE)vowel formants of females in Deterding(1990: 49)[13] were used for comparative purposes. Vowel formants for American English(AE) were obtained from Hillenbrand et al (1995: 3103)[14]where AE average formants for female participants are recorded. This