Some Prosodic Characteristics of Taiwan English Accent

Chao-yu Su* ,Chiu-yu Tseng* and Jyh-Shing Roger Jang**

Abstract

Recently the studies concentrating on computer assistant language learning (CALL) has been growing in numbers as they offer many advantagesthat couldn't otherwise be provided by a traditional classroom setting. In addtion to popular computer-assisted pronunciation teaching (CAPT) systems, computer-assisted prosody training system is another branch of CALL (Computer assistant language learning) system. The focus of pronunciation teaching system differs from the prosody training system as the former concentrates on segmental errors while the later on suprasegmental errors. In recent years studies focusing on suprasegmentals have shown that in addition to segmental information, prosodic information is indispensable for language learning. Moreover, reported studies that adopted prosodic training for second-language (L2) learners have demonstrated that computer-assisted prosody training systems could further improve the overall comprehensibility of L2 speech.

In order to better understand L2 English by native Taiwan Mandarin speakers (TW) and to apply the knowleage onto computer-assisted prosody training system, the present study examines prosodic characteristics of Taiwan L2 English in relation to native (L1) English, as TW speakers' mother tongue, Mandarin.

The English speech data used in the present study is taken from the AESOP-ILAS (Asian English Speech cOrpus Project collected by the Institute of Linguistics, Academia Sinica). Representing accent of Taiwan L2 English, which is part of AESOP project that was designed and constructed to represent various kinds of L2 English spoken in Asia when linguistic knowledge was incorporated in the corpus design. The built-in linguistic knowledge aims to elicit production of English segmental and suprasegmental features including (1) word-level features by target words in carrier sentence; (2) phrase boundary phenomena by target words at phrase boundaries; (3) phrasal and sentential prominence (broad and narrow focus) by target words; (4) function words in stressed and unstressed positions, and (5) prosodic disambiguation of syntactic structures. As for the speech material of L1 Mandarin, the data is from the intonation balanced speech corpus in SINICA COSPRO, which aims to examine the role of intonation with respect to prosodic grouping in Mandarin speech. In totoal, English speech by 9 L1 (4M&5F)/9 L2 (5M&4F) speakers and Mandarin speech by 2 L1 (1M&1F) speakers are used for present analysis.

Our previous studies of L2 English have shown some distinct L2 suprasegmental features. These features include lack of pitch and loudness contrasts in prosodic realizations at both word and sentence levels. In another previous study we further showed native (L1) speakers may realize word stresses through a binary stress/no-stress contrast anchored by

*
 Institute of Linguistics, Academia Sinica, Taipei, Taiwan
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 CS Dept., National Taiwan University, Taiwan

the position of primary stress. Post-primary syllables tend to be reduced to near-tertiary stress while pre-primary syllables could be elevated to near-primary magnitude in F0. Thus the 3-way primary/secondary/tertiary contrast is merged into a binary stress/no-stress contrast with robust prosodic contrasts between the primary stress and its following syllable(s). As results, the position-related merge of the secondary word stress turns out to be difficult for TW L2 speakers to carry out and it might be one of sources of L2 English accent. We also compared TW L2 English accent and TW Mandarin, the target L2 speakers' mother tongue, in order to uncover in what ways TW L2 accent could be attributed from their L1 Mandarin features. Following this line of research, the present study incorporates prosodic features found to contribute to TW L2 accent in previous studies to investegate: 1) how TW second-language (L2) English is different from L1 Englsish by intergrated prosodic feautres, 2) if any transfer effect from L2s' mother tongue contributes to L2 accent, and 3) what are the similarities/differences between L1 and L2 by prosodic templetes of target words/sentences.

To test how TW L2 English is different from L1 Englsish by intergrated prsodic feautres, L1 English, TW L2 English and TW L1 Mandarin are identified from each other by 2 classifiers, SVM and KNNC. Results show the prosody of TW L2 English is distinct from L1 English; however, TW L2 English and TW Mandarin share common prosodic characteristics which could be differentiated from L1 English. Further analyses by individual prosodic feature show distinct L2 features of TW English which might attribute to prosodic transfer from Mandarin. Another feature is the less tempo contrast in sentence that contributes to different rhythm; while narrower loudness range of word stress is yet another featurethat contributes to less strong/weak distinction in TW L2 English.

Prosodic templates of target word/sentnece are further compared between any two of L1/L2 speakers. We assume between-speaker similarity would be greater when the speaker-pair selected belongs to the same speaker group (L1/L2) than when the speaker-pair is from different speaker groups (L1/L2). The between-speaker similarity is defined as average cosine measure between two speakers by prosodic feature vectors. Theresult does show L1 and L2 speakers produce prosodic templates with greater within-group consistency respectively but their within-group patterns are distinct from their counterpart group. One distint pattern we found is loudness of sentence and another pattern the timing/pitch patterns of word. The above prosodic transfer effect and distict TW L2 patterns of prosody are found in relation to syntax-induced narrow focus and lexicon-defined word stress which echo our previous findings with regard to prosodic realizations TW L2 English.

We believe the above analyses with incorporated linguistic knowledge not only shed light on better understanding of TW L2 English, but can also be implemented in further refinments of the current CALL and CAPT systems .