
**Abstract**

This paper studies the structure of foreign-accented read English speech. A system for accent identification is constructed by combining linguistic theory with statistical analysis. Results demonstrate that the linguistic theory is reflected in real speech data and its application improves accent identification. The work discussed here combines and applies previous research in language identification based on phonemic features with the analysis of the structure and function of the English language. Working with phonemically handlabelled data in three accented speaker groups of Australian English (Vietnamese, Lebanese, and native speakers), we show that accents of foreign speakers can be predicted and manifest themselves differently as a function of their position within the syllable. When applying this knowledge, English vs. Vietnamese accent identification improves from 86% to 93% (English vs. Lebanese improves from 78% to 84%). The described algorithm is also applied to automatically aligned phonemes.