

# Dual-domain Hierarchical Phoneme Classification

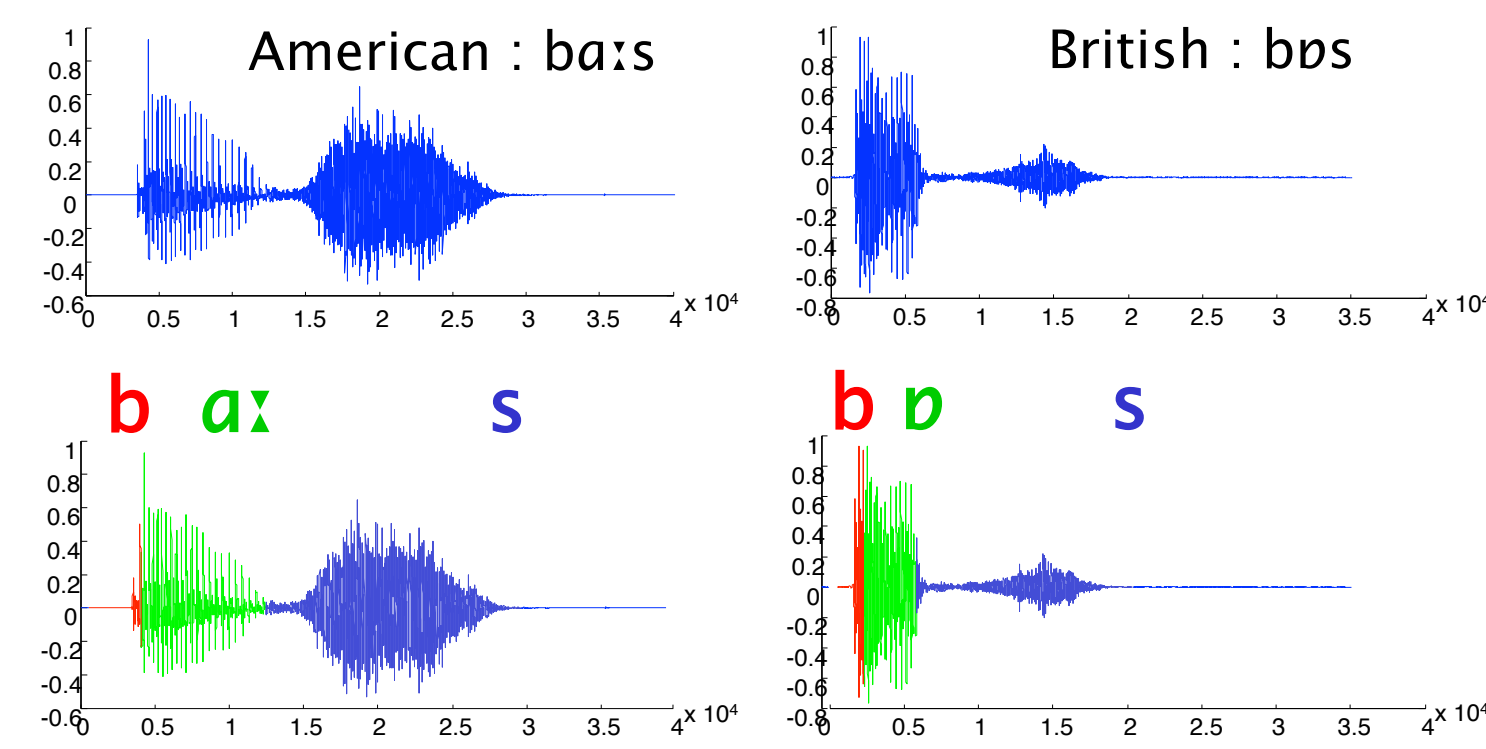
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## Abstract

Phonemes are smallest unit of human speech in any language. We use both frequency and time domain features for English phoneme classification. We use a hierarchy of phonemes based on their manners of pronunciation and applied non-parametric conditional classification at each node. The classifier is tested on three novel datasets and the results are significantly better than parametric methods.

## Motivation

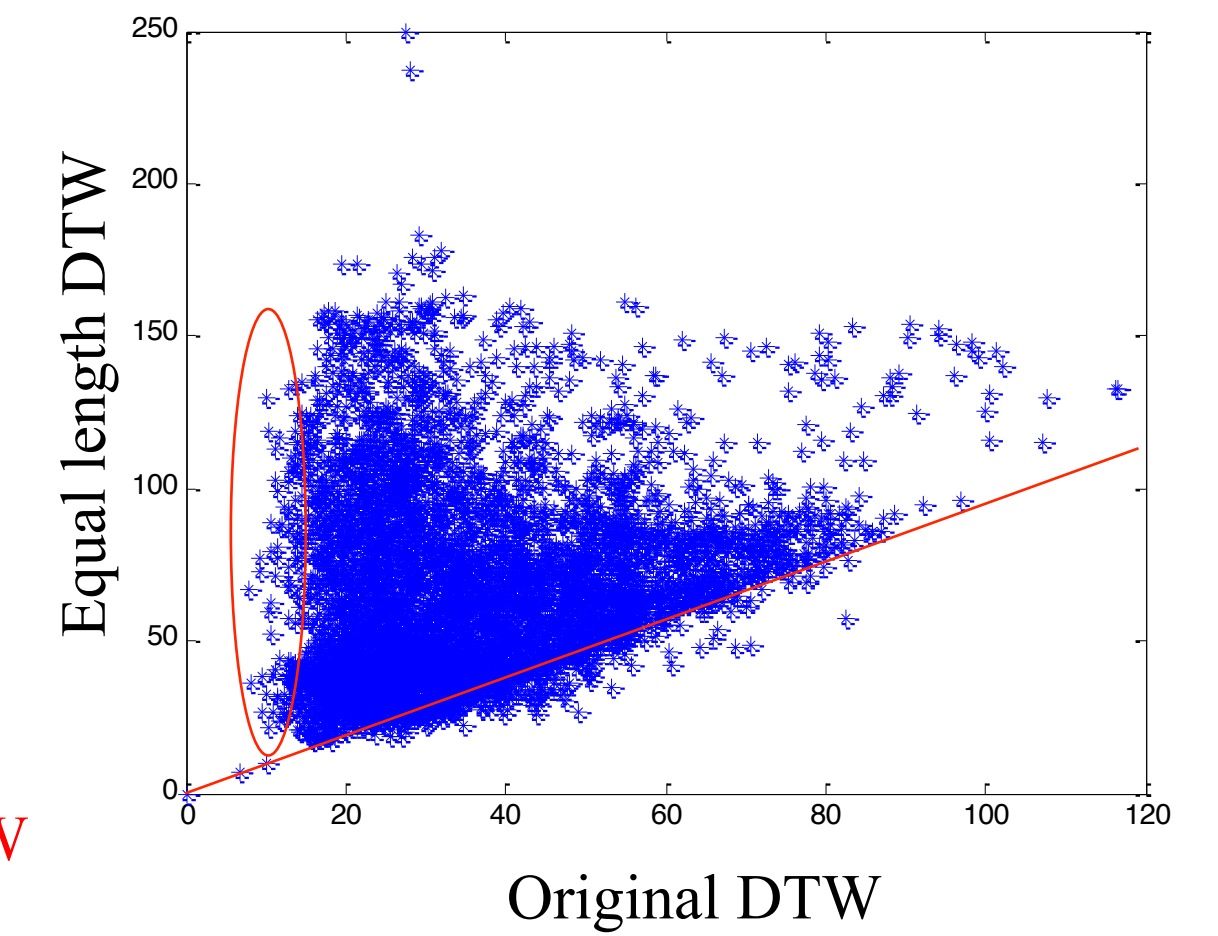
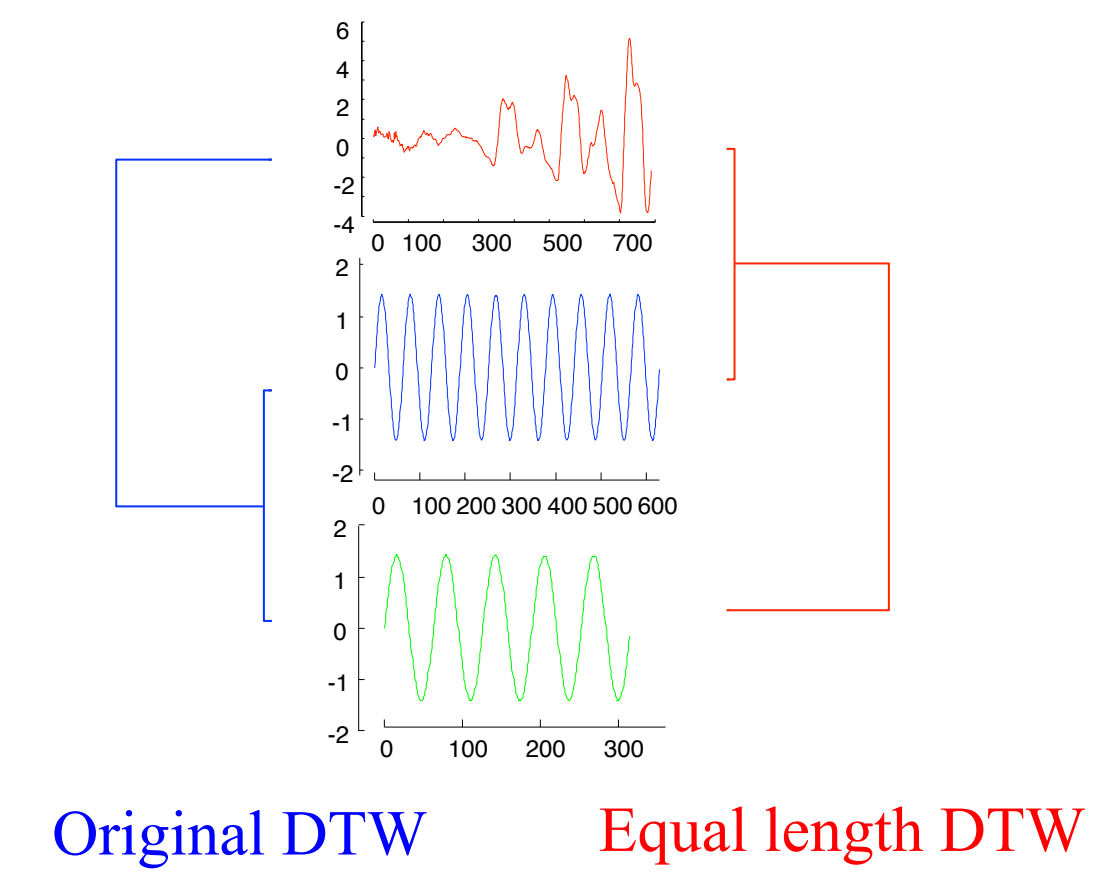
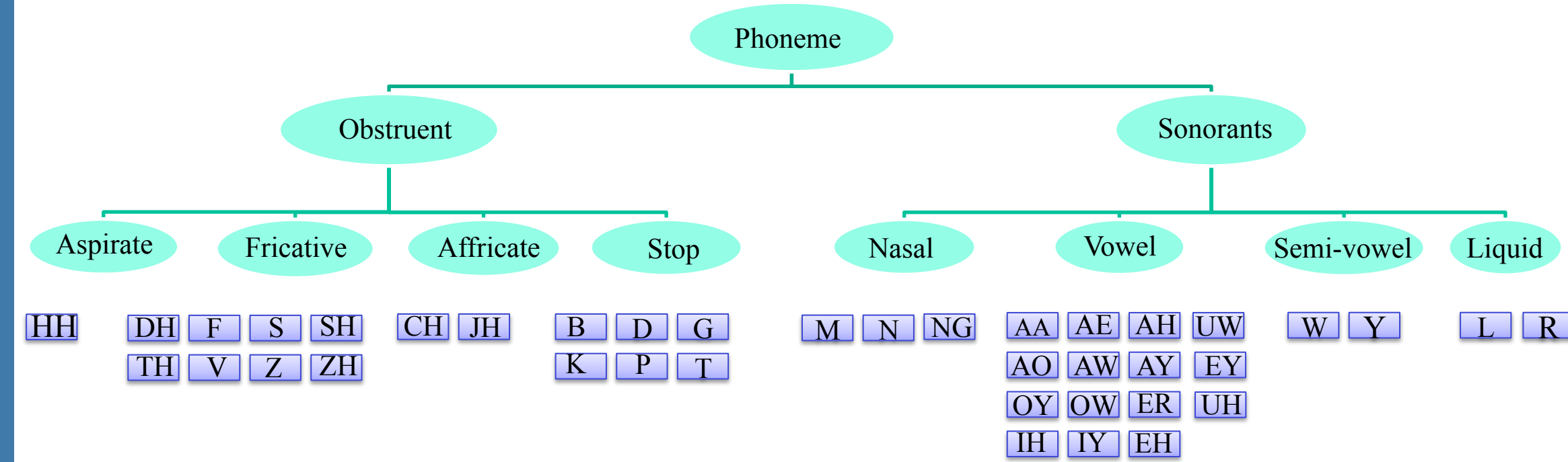
Accurate classification of phonemes can lead to better understanding of speech variations such as accents, dialects and disorders. Phoneme based speech recognizers can be robust for such variations.



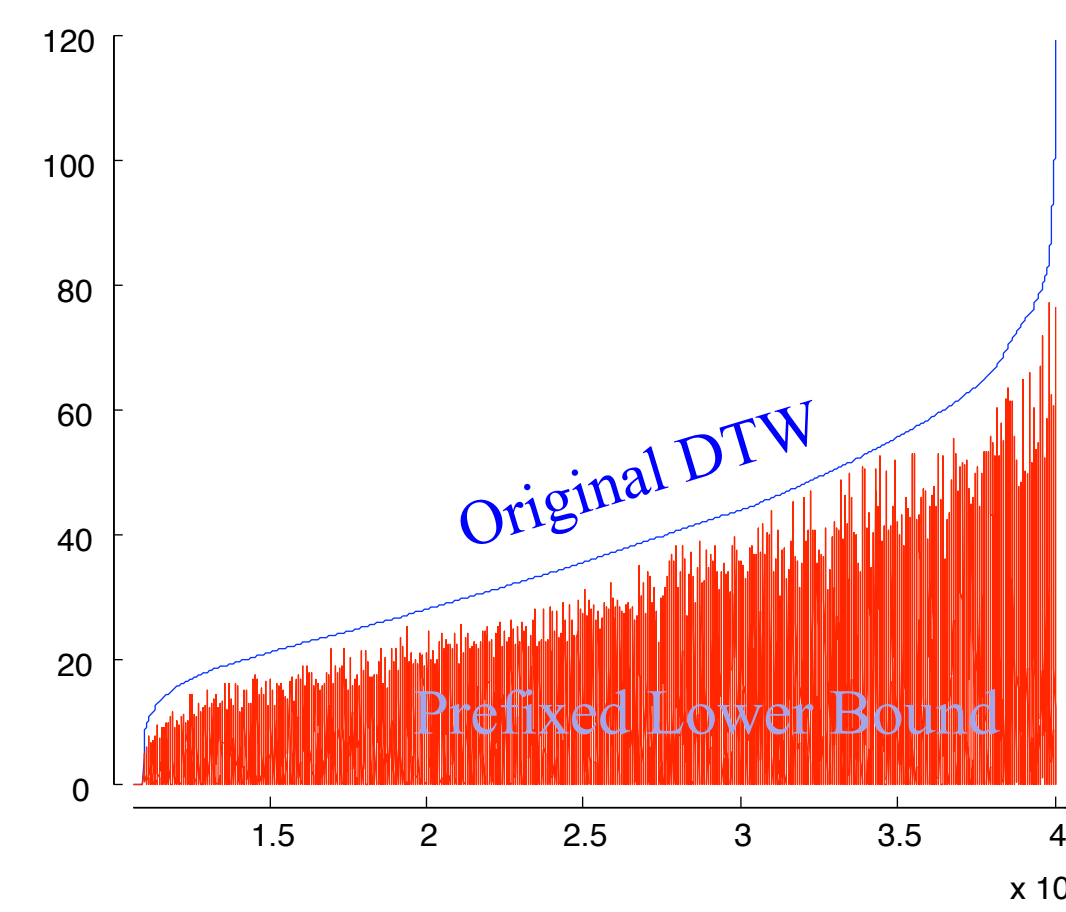
## Data Preparation

- Crawling online dictionaries
  - Google Translate
  - Oxford Dictionary
  - Merriam-Webster
- Segmentation
- Silent Removal
- Normalization

## Phoneme Hierarchy



## Techniques



## Results

