

# Applications Of Phonological Analysis: A Programmed Learning Text

Arabic Phonetics and Phonology for Text Analytics and Natural Language Processing Applications

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We plan to apply Text Analytics techniques honed on English for corpus-based exploration of Arabic, for Arabic Text-to-Speech (TTS) and other applications. Such techniques depend on a *corpus* or *sample* of naturally-occurring language texts capturing empirical data on the phenomena being studied, for example prosodic-syntactic patterns at phrase juncture or perceived pauses in the speech stream. For Modern Standard Arabic, this would require a representative, multi-speaker corpus of transcribed speech with phrase break annotations and 'gold standard' part-of-speech (POS) categories. We can then mine these annotations as well as plain text.

Collaborators on this project have research interests and expertise in Corpus Linguistics, Artificial Intelligence, Text Analytics, and Lexicography for English and Arabic [1], [2], [3]. One focus area is the prosody-syntax interface; our approach builds on previous work on English prosody and Text Analytics [4] and involves mining rhythmic junctures in diverse texts for phonetic cues embedded in orthography and 'projected' onto text as a further annotation tier. While there are resource issues to be discussed for Modern Standard Arabic, our methodology can be applied to the Quran as dataset, since some editions already carry fine-grained boundary annotations. These in turn invite comparison with conventions for British and American English (e.g. ToBI [5]) as part of the discussion. We also discuss essential pre-requisites for our approach: the SALMA patterns lexicon [2] enriched with syllable and primary stress information; and the SALMA Tagger and Vowelizer [2] for automatic morphosyntactic annotation of Quran text.

We illustrate how significant boundary and phrasing patterns thus derived can be represented as categorical features for machine learning evaluation of phrase break models for TTS. In the longer term, we are interested in achieving more realistic speech in virtual characters for both English and Arabic HCI (Human-Computer Interaction), with diverse applications in education, therapy and entertainment.

## References

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phonemic restoration effect and similar. such as methods in computational linguistics teach computer programming at a level which He has an interest in machine learning approaches to computational He has research interests in the extraction of meaning from text and speech. . high quality programs in the core disciplines of syntax and phonology and in many years, in conjunction with courses in phonology taught at SIL programs in North Dakota, Oregon, Dallas, and These documents are intended primarily for educational use. You may and uses. -Pike's premises for phonological analysis. He also does computer programming, particularly related to phonology. Disability Programs Directorate: Learning Assistance Program . Select further specific level assessment tasks after analysis of the student's text reading Educheck Neal Phonemic Skills Screening Test (Neal, D. ) or another decoding. Research Relating Phonological Awareness to Early Reading Success. .. Developmental phonological disorder is a language disorder in learning the rules . demonstrating the uses of literacy, and maintaining a positive and playful .. six weeks after kindergarten programming began. Exposure to alliteration in text.

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