An Acoustic Phonetic Study Of The Application Of Underspecification Theory On Iraqi Arabic Vowels

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Abstract

Underspecification Theory (henceforth UT) is one of the controversial issues of Lexical Phonology. UT is concerned with the theory of features and the specification of underlying segments; hovering mainly on the idea that features should be left unspecified if a lexical phonological rule would be capable of filling them in, i.e. Underspecification pursues the omission of certain features in underlying representation and the specification of underlying segments. Dinnsen (1998:294) contends that the theory crucially distinguishes between these properties of underlying representations that must be specified and those that must be underspecified, that is not specified. The underspecified properties, in this case, are filled in by rules of various types that express the predictable value of the property. Durand (1990:156) argues that there are two views on the specification account: 1) a full specification account, and a partial specification account. The former type is concerned with the utterance of a value for each feature into a phonological matrix including the total set of distinctive features as high, low, back, round and voice. The latter approach leaves out some predictable features; the missing values would be then filled by redundancy rules, with the possibility that the contrast between two phonemes suspends in some contexts leading to the postulation of archiphonemes. In this case, UT is not just an attempt to achieve formal simplicity at the underlying level. At the basis of this approach lies an interest in a symmetrical segments or feature-values in languages, as it starts from the assumption that underlying specification should be as streamlined as possible and that redundancies should be extracted from underlying entries for distinctive features and all other aspects of phonological representations.

Acoustic phonetics is the study of the physical properties of speech, and aims to analyse sound wave signals that occur within speech through varying frequencies, amplitudes and durations. One way we can analyse the acoustic properties of speech sounds is through looking at a waveform. Pressure changes can be plotted on a waveform, which highlights the air particles being compressed and rarefied, creating sound waves that spread outwards. Unlike a voiced vowel sound, this would show up as an irregular, random pattern on the waveform. On the spectrogram, this would be represented by high frequency acoustic energy which is dark and intense, and therefore has high amplitude. This is typical of many voiceless fricatives, such as [f] and [s] in the English sound system. 3.Formalized Arabic Phonetic Grammar (APG) To eliminate the threat of incompliance with Arabic phonology, we had to test each expanded path while the searching process against a formal Arabic Phonetic Grammar (APG) of Arabic words. If the test fails that intermediate path is eliminated, else the path is added to the of open paths stack of A*. Despite the rich literature on classic Arabic phonology (Mukhtar Umar, 1990), (Anees, 1971), (Al-Aany, 1983), a formal APG written in BNF format was not available to enable the computational validation process mentioned above. An Acoustic Phonetic Study Of The Application Of Underspecification Theory On filled in during the course of lexical ...Documents. A Grammar of ArabicDocuments.