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Περίληψεις/ Abstracts



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## **Designing a Modern Greek sentence corpus for audiological and speech technology research**

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Although there is a number of word lists constructed for speech audiometry and speech perception testing in Greek (e.g. for real words: Iliadou et al., 2006; Trimmis et al., 2006; for pseudo-words: Trimmis et al., 2013), to the best of our knowledge, there is no sentence material available for such purposes. The aim of the current work is to develop a freely available sentence corpus in Modern Greek as a useful resource for audiology and speech technology research. Sentence corpora that differ in format and composition have been constructed for other languages using various methods and tools for sentence selection (e.g. for English: Kalikow et al., 1977; Bell & Wilson, 2001; for Spanish: Cervera & González-Alvarez, 2010; for German: Wagener et al., 1999; for Dutch: Versfeld et al., 2000; for Finnish: Vainio et al., 2005; for Thai: Munthuli et al., 2015). The design of the present corpus is based on the Harvard sentences material (1965 Revised List of Phonetically-Balanced Sentences) (Rothausen et al., 1969) which has been recommended for speech quality measurements by the IEEE (Institute of Electrical and Electronics Engineers) and has been used extensively in speech intelligibility testing (e.g. Bradlow et al., 1996; Hu & Loizou, 2010; Cooke et al., 2013). Hence the current material consists of 720 sentences of variable syntactic structure, designed according to the following criteria. Each sentence comprises exactly 5 keywords which are almost always content words, and (optionally) 1 to 4 non-keywords which are pronouns and other function words; hence total sentence length ranges strictly from 5 to 9 words. All words contain either one, two or –maximally three syllables, and have been selected so that the sentences are meaningful and resemble everyday language. Keywords have been combined so that the sentences are semi-predictable, hence an effort was made to avoid proverbs, stereotyped phrases and the too frequent use of any keyword (Egan, 1948). Although a number of the original Harvard sentences have been translated into Greek following the methodology described in Aubanel et al. (2014) for the creation of a similar sentence corpus in Spanish, the majority of the sentences in the present corpus are authentic mainly for two reasons: a) the original English sentences were written many years ago and would sound out-of-date and unusual to Greek listeners today, and b) an exact translation from English to Greek was frequently impossible due to the fact that a great number of English mono- and disyllabic words correspond to Greek words that contain more than three syllables. The current paper presents the corpus design, the orthography and phonetic transcription of the sentences, provides statistical information about the material, and discusses the challenges faced during its construction. Subsequent work involves balancing the 720 sentences according to word and phoneme frequency so that 72 equal lists of 10 sentences are created, recording the sentences with adults and children for the development of a Greek-Harvard style speech database, and evaluating the speech material in listening tests in quiet and in noise.

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