A Danish open-set speech corpus for competing-speech studies

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Studies investigating speech-on-speech masking effects commonly use closed-set speech materials such as the coordinate response measure [Bolia et al. (2000). J. Acoust. Soc. Am. 107, 1065-1066]. However, these studies typically result in very low (i.e., negative) speech recognition thresholds (SRTs) when the competing speech signals are spatially separated. To achieve higher SRTs that correspond more closely to natural communication situations, an open-set, low-context, multi-talker speech corpus was developed. Three sets of 268 unique Danish sentences were created, and each set was recorded with one of three professional female talkers. The intelligibility of each sentence in the presence of speech-shaped noise was measured. For each talker, 200 approximately equally intelligible sentences were then selected and systematically distributed into 10 test lists. Test list homogeneity was assessed in a setup with a frontal target sentence and two concurrent masker sentences at ±50 degrees azimuth. For a group of 16 normal-hearing listeners and a group of 15 elderly (linearly aided) hearing-impaired listeners, overall SRTs of, respectively, +1.3 dB and +6.3 dB target-to-masker ratio were obtained. The new corpus was found to be very sensitive to inter-individual differences and produced consistent results across test lists. The corpus is publicly available.

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