Making sense of sloppy speech: Do Danish-speaking listeners behave differently than Dutch-speaking listeners?

Due to articulatory restrictions of our vocal tract, artificially time-compressed speech is usually characterised by clearer articulation than equally fast, but naturally produced speech. For Dutch, it has been reported that reaction times in a phoneme detection task are shorter for artificially time-compressed speech than for naturally fast speech (Janse, 2004). This has been partly explained by the high number of reduction processes found in fast speech compared to the relatively clear, time-compressed speech. Interestingly, however, this pattern has not been confirmed for Danish, when accuracy in a dictation task was analysed (Schüppert et al., in press). This raises the question whether phoneme detection tasks and dictation tasks generally yield different results, or whether speakers of different languages cope with reduced speech in different ways. In this talk, we report data from an experiment which was designed to replicate the study on Danish conducted by Schüppert et al. (in press) with Dutch material, in order to find out whether Danish-speaking listeners handle normally reduced speech in a different way than Dutch-speaking listeners.

In a dictation task, 50 participants were presented with 50 semantically unpredictable sentences in two conditions: (i) quick and reduced, and (ii) quick and unreduced. In order to create condition (i), native speakers of Dutch and Danish were instructed to read aloud the 50 sentences quickly and sloppily. Condition (ii) was derived by instructing the same speakers to read the same sentences slowly and accurately and time-compressing this material to the same duration as condition (i). The participants’ task was to write down what they heard as accurately as possible. Intelligibility was measured by counting the number of correctly translated content words (maximally four per sentence).

The results confirmed the findings by Janse (2004), that artificially time-compressed speech is more intelligible to Dutch-speaking listeners than normally produced fast speech. We found a significant interaction effect between the degree of reduction (reduced versus unreduced) and the language (Dutch versus Danish). More specifically, while Dutch-speaking listeners decoded sentences from condition (ii) more accurately than sentences from condition (i), Danish-speaking listeners performed equally well on sentences from both conditions. This suggests that Dutch-speaking listeners cope less well with reduced speech than Danish-speaking listeners do.

References:
