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Estimating phonetic entrainment based on intra-speaker variability

In conversation, interlocutors often align with each other in various speech features. In speech entrainment research, various measures have been used to find out which features are liable to change simultaneously, or to estimate the degree of entrainment in various types of dialogues. We suggest a novel approach for research in this field – based on intra-speaker variability, i.e. comparing speech behavior of the same speaker in different situations.

The research is based on the SibLing speech corpus which was specifically designed for this purpose. In this corpus, each of 20 key participants participated in 5 recording sessions representing 5 degrees of social distance between the interlocutors: there were dialogues between same-gender siblings, same-gender friends, same-gender and opposite-gender strangers, strangers of different age and social status. Each pair of interlocutors played a card-matching game and performed a classical map task. First, we performed acoustic analysis of the data to calculate the prosodic entrainment and to reveal factors influencing various acoustic features. Second, we performed a series of perceptual tests using crowdsourcing platform Yandex.Toloka aiming to reveal how naïve listeners perceive dialogues between various pairs of interlocutors. We found the influence of situational factors on both the acoustic-prosodic entrainment and the perception of the dialogue by an independent listener.