Laughter in conversational speech: laughing together vs. laughing alone

Khiet P. Truong (1) and Jürgen Trouvain (2)
(1) Unviersity of Twente, The Netherlands
k.p.truong [at] utwente.nl
(2) Saarland University, Saarbrücken, Germany
trouvain [at] coli.uni-saarland.de

Besides spoken words conversational speech usually contains non-verbal vocalisations such as laughter and coughing. In a recent analysis of several publicly available conversational speech corpora (both multiparty and dyadic conversations) we could show that laughter and (other) breathing noises were the most frequent non-verbal vocalisations [1]. What makes laughter even more special, in addition to the frequency in conversations, is the fact that interlocutors often apply laughter as a joint vocal action which is in contrast to most other vocalisations.

Most remarkably, laughter that appears as an utterance of one single speaker ('solo laughter') often shows a different acoustic make-up to laughter where people laugh together. These temporally (partially) overlapping laughs are stronger prosodically marked than non-overlapping ones, in terms of higher values for duration, mean F0, mean and maximum intensity, and the amount of voicing. This effect is intensified by the number of people joining in the laughter event, which suggests that entrainment is at work. We also found that group size affects the amount of overlapping laughs which illustrates the contagious nature of laughter. Finally, people appear to join laughter simultaneously at a delay of approximately 500 ms: this means that spoken dialogue systems have some time to decide how to respond to a user's laugh.

[1] Trouvain, J. & Truong, K. 2012. Comparing non-verbal vocalisations in conversational speech corpora. Proc. 4th International Workshop on Corpora for Research on Emotion Sentiment & Social Signals, Istanbul, pp. 36-39.