Acoustic characteristics of filler particles in German

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Data

- Pool2010-Corpus: semi-spontaneous speech of 100 native German males in two speech conditions: Lombard and normal speech (appr. 13 h) [Jessen et al. 2005, IJSLL]
- Annotations of filler particles (FPs) (*uh*, *uhm*, *hm*) + their pause context, glottalised FPs and tongue clicks

What is the distribution of FPs in this corpus? How does it vary between normal and Lombard speech? Any speaker-specific differences?

Frequency

	normal (%)	Lombard (%)	sum
uh	921 (36.7)	857 (31.2)	**1778**
uhm	395 (15.7)	327 (11.9)	**722**
hm	182 (7.3)	86 (3.1)	**268**
glottal FP	237 (9.4)	381 (13.9)	**618**
clicks	774 (30.9)	1098 (39.9)	**1872**
sum	**2509 (100)**	**2749 (100)**	**5258**

Tab.1: Absolute and relative numbers of FPs

- Difference normal to Lombard: typical FPs decrease while others increase

Duration

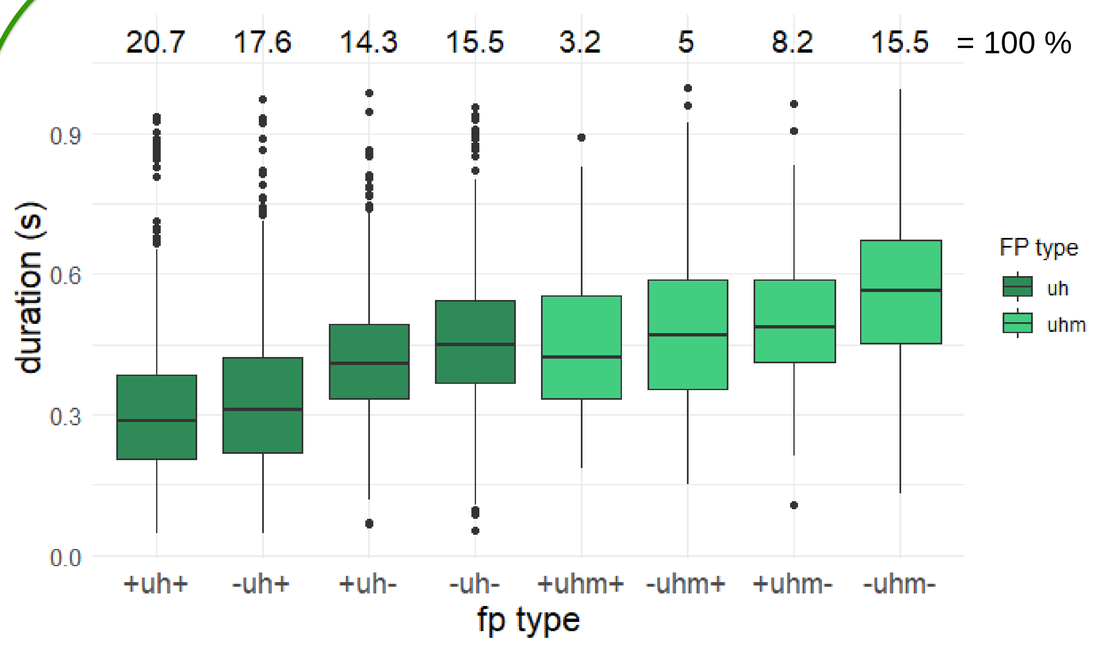


Fig. 1: *uh* and *uhm* in their context types: speech (+) or silence (-) to the left and right. Top: Percentage. Boxplot: Duration values.

- Duration hierarchy: FP durations increase with silence to left and/or right.
- FPs shorter within speech than between two silences (+FP+ vs -FP-).
- FPs shorter in utterance-initial position than in utterance-final position (-FP+ vs. +FP-).

Vowel quality

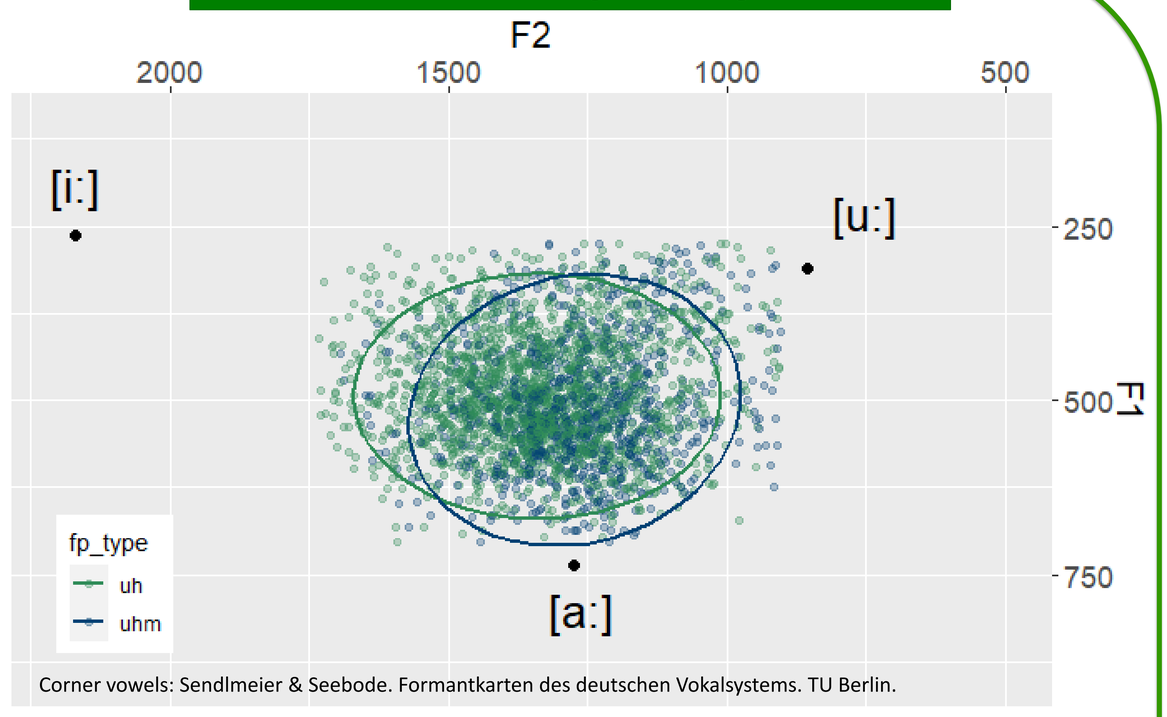
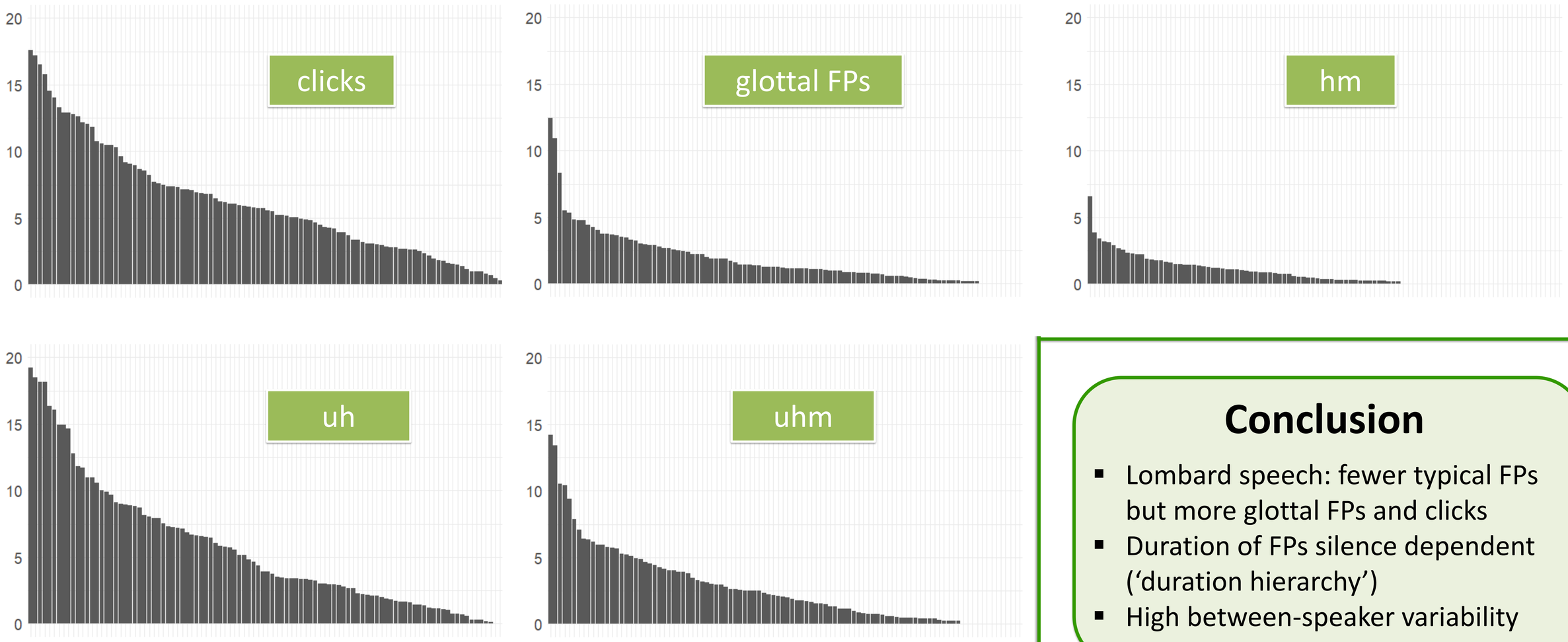


Fig.2: Vowel quality of midpoints of *uh* and *uhm*. Values 2 sd above/ below mean excluded. Typical values for corner vowels in German.

- *uh* and *uhm* show a high degree of overlap (Pillai = 0.03; values closer to 0 = more overlap).

FP rate per minute for individuals



Conclusion

- Lombard speech: fewer typical FPs but more glottal FPs and clicks
- Duration of FPs silence dependent (‘duration hierarchy’)
- High between-speaker variability