

# Cue reweighting and trading relations in the signaling of the (emerging) fortis/lenis contrast in German varieties

Felicitas Kleber  
IPS, LMU München

Different acoustic cues to the same phoneme may enter into a trading relationship by which one cue is offset by the other. Such trading relations are not only relevant for theories of speech perception (Kingston and Diehl, 1994) but also for theories of sound change (Beddor 2009)—in particular as a number of sound changes have been related to the reweighting of multiple acoustic cues (see e.g. Kirby, 2013 on tonogenesis).

Trading relations in one domain, e.g. speech perception, are, however, not necessarily mirrored in another domain, e.g. speech production. For example, while the voicing contrast in American English is characterized by a perceptual trading relationship between VOT and  $f_0$  at the onset of a vowel following upon a stop (Cf0), the two acoustic parameters appear to be uncorrelated in production (Clayards, 2018; Shultz et al., 2012). For standard German, on the other hand, trading relations between closure duration and VOT in the cueing of the word-medial fortis/lenis contrast have been proposed to exist both in production and in perception. Speakers of standard German lengthened the closure duration of fortis stops to offset shorter aspiration and vice versa (Harrington et al., 2012) and standard German listeners rated word-medial, postvocalic stops with ambiguous VOT values and long closure phases as fortis stops (Jessen, 1998). While such perceptual trade-offs were also apparent in L1 speakers of various German regional varieties, the trade-off effects in production were very weak and apparently conditioned by nasal stop releases in contexts of schwa deletion (Kleber, 2018).

In this talk, I will present new cross-linguistic data obtained within the DACH project from standard and Bavarian German speakers of different ages and covering a wider range of segmental contexts and acoustic cues than in previous analyses to shed light on the nature of covarying cues to the fortis/lenis contrast in standard German, on the one hand, and on their development in Bavarian German, on the other. Bavarian German is particularly interesting as it is currently developing a fortis/lenis contrast in word-initial position similar to that found in standard German and cues to the word-medial, intervocalic fortis/lenis contrast are currently being reweighted and become more standard-like. First analyses point towards positive correlations between closure duration and VOT in word-medial, postvocalic stops and between VOT and Cf0 in word-initial, prevocalic stops in standard German suggesting cue enhancement (Kirby, 2013)—though on two dimensions—rather than cue trading in words with orally released stops. Similar correlations, though less pronounced, are found in younger Bavarian speakers, while correlations were very weak in older Bavarians. These findings suggest that covariation can develop in tandem with emerging or reweighted cues without being the source for diachronic change.

## References

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