Cross-linguistic perceptual similarity and bias in L2 vowel perception

Similarity is one of the central concepts in many models of L2 speech perception and acquisition (e.g. Best 1995; Flege 1987, 1995; Kuhl 1992, 1993), but few attempts have been made to operationalize it for speech perception. This contribution aims to critically discuss a view of perceptual similarity of L2 sounds merely in phonetic-acoustic terms. Based on data from a large-scale vowel identification experiment, this paper will discuss empirically grounded ways to operationalize cross-linguistic perceptual similarity in L2 by integrating contributions from L2 research, experimental phonetics and cognitive psychology. The data from 173 learners of German from 10 different L1-subsamples (+ a native control group), who performed a vowel identification task, (Author 2014) will be used to demonstrate how cross-linguistic perceptual similarity of L2 categories can be visualized in a spatial MDS representation of the L2 vowel space (Shepard 1972, 1980; Terbeek 1977; Johnson 2012). Alternatively to more traditional mono-directional conceptions of similarity between L1 and L2, we favour a *cross-linguistic influence*-approach focussing on *biases* associated with properties of *stimuli* (acoustic-phonetic) as well as *responses* (phonological). The cross-language comparison of the L1-subsamples shows that – rather than predicting perceptual similarity directly from phonetic properties – perceptual *similarity* s_{ij} between TL categories has to be modelled as the result of the complex interaction of phonetic *proximity* p_{ij}, *stimuli biases* b_i and *response biases* b_j ($s_{ij} = p_{ij} * b_i * b_j$). *Biases* vary according to several factors such as attentional tuning to specific cues in the signal and the learner's L2 experiences and proficiency, but are also influenced by the experimental setting, the set of stimuli and response categories presented in the experiment and the learner's expectations and hypotheses of the target language vowel system.

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