

L2 learners' phonological compensation and lexical access

Recently psycholinguistic research has found that L1 listeners activate speakers' intended underlying phonemes when they hear the assimilated phonemes (Pitt 2009, Gow 2002). Their restoration of underlying representation (e.g., 'cone' from [kom bEnt]) is attributed either to phonological inference or to phonetic inference via incomplete assimilation. The present study addresses an interesting question of whether or to what extent L2 learners from diverse L1 background recover nonnative speaker's underlying segments specifically in the environment of L2 phonological rules. Pitt (2009) suggests that listeners depend on both lexical process and phonological process to recognize speakers' intended words. However, our study focuses on the available power of phonological inference by using semantically novel word sequences (e.g., cat pat [..p p..]) and on the possibility of phonetic inference by using the gradiently assimilated segments. The results show that even L2 listeners use phonological inference mechanism in the context of phonological rules. The degrees of phonological compensation vary depending on individual phonological rules and L2 speakers with different L1s.

Based on our processing experiment, we propose a word recognition grammar whereby the speakers' underlying phonemes are recovered from the surface forms in assimilation context. It is suggested that constraints RECOVER IO demanding the recovery of the phonemes are responsible for the retrieval the underlying phonemes in the assimilation contexts. Ranking RECOVER over FAITH IO accounts for the perceptual restoration of the underlying features and lexical access via the backward inference based on phonological rules. In summary, our study supports processing models like phonological inference and phonetic inference in nonnative listeners' recognition of the underlying phonemes and intended words.