Mouths, ears, and brains in foreign language production

Mispredonation in a foreign language has traditionally been attributed to interference from native language ‘motor habits.’ More recently, Ussishkin & Wedel (2003) have supported this view with data suggesting that long-distance phonological constraints (such as vowel harmony and consonant cooccurrence restrictions) are less likely to be carried over to foreign forms than are local restrictions on individual phonemes and phoneme combinations. They propose that this asymmetry results from the fact that local phonotactic restrictions reflect “practiced sequences of atomic gestural units.”

However, speakers often display asymmetries in the production of different but equally novel phoneme sequences, even when each sequence would appear to require mastery of new gestural programs (or suppression of ingrained programs): for example, while native Japanese vocabulary prohibits the sequences [ti] and [si], [ti] is more likely to be produced accurately, as illustrated by the loanword [ji:ti:ban:ku] ‘Citibank’ (Ito & Mester 1995, Crawford 2007). We will present evidence from behavioral and ERP investigations of cross-language perception indicating that even at pre-attentive levels, listeners may misperceive foreign forms in ways that mirror their production of these forms, suggesting that misperception is at least as important a factor in misproduction as failure to master new motor routines. Asymmetries in production may therefore reflect asymmetries in the perceptibility of a new contrast. We will then consider implications of cross-language perception patterns for the debate concerning whether “the informational primitives of speech perception” (Best 1995) are best understood as abstract phonological features (e.g. Brown 1998), acoustic/auditory cues in the speech signal (e.g. Diehl, Lotto, and Holt 2004), or vocal tract gestures (e.g. Fowler 2004).