

Loanword adaptation asymmetries in Austronesian and articulatory gestural programs

Loanword adaptation patterns in Austronesian languages reveal an asymmetry that cannot be explained under current theoretical models of phonology: modification in borrowing is more likely to take place to satisfy constraints referencing phonologically *local* restrictions, rather than constraints referencing *long-distance* restrictions. Here, we concentrate on data in a range of Austronesian languages that bear out these observations. In the realm of local phonotactic restrictions, we examine a widespread ban on consonant clusters in Woleaian (Trukic) – a restriction that is enforced in loans (e.g., [biriif] from English ‘brief’) via vowel epenthesis. In the realm of long-distance restrictions, our data are taken from the domain of OCP effects in Javanese (Sundic), as documented by Mester (1986), based on Uhlenbeck (1949). Loanwords in Javanese violate a restriction within native roots against homorganic consonants, as in the Dutch borrowing [bipet] ‘buffet’; such violations are accommodated without adaptation. Vowel harmony – another long-distance phenomenon – is violated by loanwords in the Lolovoli dialect of Ambae (Oceanic).

Within Optimality Theory (Prince and Smolensky 1993), this asymmetry could be accommodated by a universal hierarchy stating that constraints regulating local relations must outrank constraints regulating non-local relations. This stipulation, however, leaves unexplained the basis for this asymmetry. Following a long line of research that seeks deeper explanations for markedness hierarchies in physiological/physical factors, we propose an account of the local/non-local constraint-ranking asymmetry grounded in articulatory phonology (Browman and Goldstein 1986) and research in higher-level motor organization (Willingham 1998).

Research on the execution of complex motor sequences suggests that with repetition, a motor sequence becomes consolidated into a motor program characterized by higher-level organization of the component gestures, subsequently resulting in more accurate and rapid execution (Shadmehr and Holcomb 1997, Wolpert et al. 1995). Likewise in articulation, it has been argued that repeatedly executed sets of overlapping articulatory movements (gestural scores, cf. Browman and Goldstein 1986) become consolidated into gestural motor programs (Byrd 1996, Levelt and Wheeldon 1994). An utterance is then encoded into these gestural programs prior to execution (e.g., Levelt 1992).

To understand the distinction between local versus long-distance phonotactic restrictions in loanwords, we focus on the relationship between the locality of such restrictions and the gestural programs available to a speaker. A phonotactic restriction forbidding some set of local, overlapping gestures results in a gap in the set of gestural programs acquired by the speaker. In contrast, a restriction obtaining between distant, non-overlapping elements places no limitation on the range of acquired gestural programs.

On this view, faithful borrowing of loans in violation of a long-distance phonological generalization proceeds without addition to the set of gestural programs available. In contrast, faithful borrowing of loans in violation of a local phonological restriction may additionally require the acquisition of a novel motor sequence. We propose that it is the additional markedness incurred by loan assimilation violating local constraints that results in the asymmetric borrowing patterns discussed above. The Austronesian data above, as well as data from additional Austronesian languages, provides a clear empirical basis for pursuing this proposal.

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