

Learning to orchestrate time: Voicing patterns and gestural drift in L2 speech production

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The dynamic hypothesis of cognition (Port, 2002) provides fundamental links between the so-called low-order processes such as motor control and perception, on the one hand, and high-order order mechanisms such as memory, category formation and language, to name a few, on the other hand. This dynamical link restores the primary role of embodiment in cognition. Speech production is therefore seen as multimodal, resulting from the orchestration of dynamic action units, gestures, both at the abstract – representational – and concrete levels (Browman & Goldstein, 1992). The movement of several articulators (e.g., upper lip, lower lip and jaw) are orchestrated in order to reach a linguistically significant goal (e.g., lip closure). According to this approach, larger units such as segments and syllables are built from the atomic gestural units, referred to as gestural molecules. Such molecules are made of gestures coupled together and temporarily coordinated, building larger prosodic units (Saltzman & Byrd, 1999; Goldstein et al., 2007). Relative timing or phasing among gestures differs from language to language, such that speaking an L2 may cause “accented” speech. When a person speaks another language other than his/her native tongue, he or she is supposed to learn new gestural orchestrations as well as non-native timing or phasing relationships among L2 gestures. Such timing relationships are part of the new beat, or rhythm, to be acted by L2 interactants. Entrainment between native and foreign gestural oscillators may cause gestural drifts (Sancier & Fowler, 1997), such as when one is producing shorter or longer VOTs when speaking an L2.

Departing from a gestural approach to interlinguistic transfer, this talk presents the results of three studies investigating voicing patterns in the production of English by Brazilians. The first study looks into the transfer of VOT patterns: from Pommeranian obstruents /p^h, t^h, k^h/ into Brazilian Portuguese (L2) and into English (L3) plosives produced by 10 Brazilian multilingual children attending the third grade of a public school in Arroio do Padre-RS. The second study focuses on the acquisition of long-lag VOT by 10 adult learners of English in three proficiency levels. Finally, the third study, which addresses the transfer process of Terminal Devoicing, discusses the acquisition by Brazilians of two cues used by native speakers of English in the distinction of voicing in final obstruent: the length of the vowel that precedes the obstruent and closure voicing. Data obtained from 15 Brazilian students of English at an upper intermediate level were compared to those collected from 5 American speakers, in order to check whether the learners’ productions differed significantly from those of native speakers. Results showed that neither voicing in the closure nor vowel length were totally neutralized. The statistical analyses of the three studies are presented and results are discussed in terms of differing timing relationships among gestures, underscoring the importance of looking at L2 “accent” from a dynamic perspective.

References

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