

Not everything that can be counted counts: Input frequency and markedness in the development of second language /s/ + consonant onset sequences

The study investigates the effects of markedness and input frequency in the variable acquisition of /s/ + consonant (sC henceforth) onset clusters in the speech Brazilian Portuguese (BP) speakers learning English as a second language in a classroom environment. More specifically, the study focus on the development of the homorganic /st/, /sn/, and /sl/ sequences, which syllabify variably either via i-epenthesis, a typical BP transfer phenomenon that inserts an [i] before these illicit clusters (e.g. [i]stop), or via its target L2 pronunciation (e.g. [s]top).

These clusters are of particular relevance to investigate the effects of markedness against frequency because they make different predictions regarding their order of acquisition. For instance, if L2 learners are sensitive to markedness, they should acquire the least marked /sl/ sequence first and then the subsequent more marked /sn/ and /st/, as predicted by Clements' (1990) Sonority Cycle and its corollary principles Sonority Sequencing and Feature Dispersion. However, if L2 learners are sensitive to the frequency of these clusters in the input, they should acquire the most frequent form /st/ before /sl/ and /sn/, which occur less often in both oral and written English. The frequency data are drawn from an oral corpus specially designed for this study, which consists of the student-directed speech (teacher talk) of an English teacher over a four-month period. A summary of the predictions is illustrated below.

(1) Developmental order of sC clusters: Two hypothetical learning paths

Markedness effect:	sl	=>	sn	=>	st
Frequency effect:	st	=>	sl	=>	sn

To investigate the effect of markedness and frequency on the acquisition of sC clusters, 12 native BP speakers from three levels of proficiency in English (i.e. beginners, intermediate and advanced) were interviewed. The interviews followed standard sociolinguistic procedures for data collection and included a set of linguistic (i.e. preceding phonological environments, quality and quantity of the following vowel, word size, sonority profile of the cluster) and extralinguistic factors (i.e. style, proficiency in English) whose effects were evaluated statistically via GoldVarb X. The statistical results indicate that learners are more likely to produce target-like sC sequences in the following environments: in higher (i.e. intermediate and advanced) proficiency levels, in tasks that require more careful speech (e.g. reading of word lists and sentences), when the cluster is preceded by a vowel and, more importantly, when the clusters are of the /sl/ or /sn/ type. In contrast, /st/ clusters had no significant effect on the production of sC forms (especially in beginning and intermediate levels of proficiency), indicating that the sequence is only acquired at a later stage in the acquisition of sC onset structure. These results conform to the predictions of Clements' (1990) Sonority Cycle and to some of the previous studies on the subject (e.g. Carlisle 1991ab, Major 1986, Escartin 2005), and support the hypothesis that it is markedness on sonority sequencing, not input frequency, that determines the order of acquisition of sC clusters in second language speech.

References

- Carlisle, R. (1991a). The influence of syllable structure universals on the variability of interlanguage phonology. In A. Volpe (Ed.), *The Seventeenth LACUS Forum 1990* (pp.135-145). Lake Bluff, IL: Linguistic Association of Canada & the United States.
- Carlisle, R. (1991b). The influence of environment on vowel epenthesis in Spanish/English interphonology. *Applied Linguistics* 12 (1), 76-95.
- Clements, G. (1990). The role of the sonority cycle in core syllabification. In J. Kingston & M. Beckman (Eds.), *Papers in laboratory phonology I: Between the grammar and physics of speech* (pp. 283-333). Cambridge: Cambridge University Press.
- Escartín, C. (2005). *The development of sC onset clusters in Spanish English*. Unpublished MA thesis, Concordia University.
- Major, R. (1986), Paragoge and degree of foreign accent in Brazilian English. *Second Language Research* 2, 53-71.