

Rhythm as a determinant factor in the L2 acquisition of Phrasal Prominence

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(work in collaboration with Emily Nava)

This study provides evidence that the timing of acquisition of main phrasal prominence or *Nuclear Stress (NS)* in L1Spanish/L2 English is related to the acquisition of the lower rhythmic structure of the language, i.e. the “stress-timed” rhythm of English.

NS is intimately tied to the information structure of the sentence (Halliday 1967, Jackendoff 1972) in both English and Spanish. Yet these languages differ regarding the location of NS in certain syntactic structures. NS falls right-most in all wide-focus structures (Zubizarreta 1998, Sosa 1999), whereas in English NS may occur in non-phrase final position, eg. in intransitive SV structures (1), reduced relative clauses (2), and OV compounds (3). We refer to such patterns as *Germanic NS patterns*.

(1) A dog is barking.

(2) I have homework to do.

(3) We'll go bird-watching.

The difference between the two language types can be characterized in terms of a parametrized *Nuclear Stress Rule or NSR* (Zubizarreta 1998). NSR applies to a metrically interpreted syntactic structure, and gives primacy to arguments: if A and B are metrical sisters and A is a head and B is an argument of A, NS is assigned to B (*specific NSR*). Otherwise, NS is assigned to the rightmost node (*general NSR*). While in Germanic both algorithms are at play, in Romance only the general NSR is active. We argue that this typological difference is due to the fact that in Germanic, functional categories (such as copula *be* and non-tensed inflectional marker *to*) can be metrically invisible, giving rise to metrical-sisterhood relations and the primacy of argument, e.g. (dog barking) in (1) and (homework do) in (2). Furthermore, we conjecture that the metrical invisibility of functional categories in English is inextricably connected to the stress-timed rhythm of the language, a property that is cued by the unstressed nature of its function words. Because English and Spanish are at the opposite end of the rhythm continuum due to differences in the phonotactics of their syllabic structure (Dauer 1983), the speech of English-Spanish bilinguals offer us an ideal testing population for the hypothesis that the Germanic NS pattern is intimately connected to the lower-level rhythmic properties of the language.

A Q&A dialogue task elicited distinct phrasal stress patterns by manipulating different focus structures. Additional data (collected by reading *The North Wind and the Sun* in English and Spanish) was subjected to a MatLab script to determine if differences in voicing ratio (VR) exist across populations (cf. the stress-timed vs. syllable-timed rhythmic classification based on voicing parameters, Dellwo et al. 2007). 45 adult L1Spanish/L2English speakers (26 advanced and 19 intermediates) and 30 English natives controls (ENC) were tested. A multiway ANOVA revealed a highly significant difference ($p < .0000$) among the VR values of the English speech of the ENC and the L2 groups. Pairwise comparisons using t-tests revealed no significant difference between the ENC and the L2 group that had the Germanic NS patterns in their speech. On the other hand, significant differences at the .01 level were found between the ENC group and the L2 group without the Germanic NS pattern, as well as between the L2 groups with and without the Germanic NS patterns in their speech. The data supports the hypothesis that rhythmic shift from syllable to stress timing is a pre-requisite for the acquisition of Germanic NS pattern, such as (1) and (2).