

Stress systems can blend: Evidence from bilingual acquisition of French and English

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In this paper, we argue that, in bilingual children, phonological systems can interact not only through TRANSFER from one system to the other (see e.g., Schnitzer & Krasinski, 1994; Yang & Fox, 2017), but also through BLENDING of properties from both systems. We examine possible interaction through an analysis of stress patterns in naturalistic productions of a French-English bilingual infant (age 1;11). Stress provides the optimal context for such an investigation: children acquiring two languages that differ in the position of main stress, such as French and English, may impose one system on top of the other, resulting in productions with two stresses.

French and English have distinct stress systems. In French, stress is final and required only at the phrasal level (e.g., [lə mɔ̃vɛ gar'sɔ̃] *le mauvais garçon* ‘the bad boy’) (Jun & Fougeron, 2000). In English, word-final syllables are extrametrical (e.g., [(‘kænə)_{FI}<də>] *Canada*) and heavy penultimate syllables attract stress (e.g., [ə(‘dʒɛn)_{FI}<də>] *agenda*) (Hayes, 1995). The present study focuses on short polysyllabic words, which are rhythmically different in the two languages: French words display iambic rhythm (e.g., [pa'pa] *papa* ‘daddy’) while English words display trochaic rhythm (e.g., ['dædi] *daddy*).

Data from three 20-minute videotaped sessions were phonetically transcribed by two linguists. Monosyllables, compounds, interjections, onomatopoeia and unintelligible items were excluded. The remaining items corresponded to phonological words containing two or three syllables. Stress in the French targets was invariably final (e.g., [ve'lo] *vélo* ‘bike’), while stress in the English targets was invariably penultimate (e.g., *another*, *neighbor*). The total number of items included in the analysis was 144 (109 of which were French, consistent with the child’s dominance in French at the time of the recordings). The items were coded for language and for whether they matched the expected stress pattern.

The expected stress pattern was produced in 72.5% of French items and 28.6% of English items ($\hat{\beta} = 1.88$, $p < 0.0001$). For both languages, 63.6% of the mismatches corresponded to stress shift (1), and 36.4% corresponded to the inclusion of another stress (2).

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| (1) | (a) Stress shift in French: | ['tɔmæt] | (target = [tɔ' mat]) | <i>tomate</i> ‘tomato’ |
| | (b) Stress shift in English: | [dæ' di] | (target = ['dædi]) | <i>daddy</i> |
| (2) | (a) Inclusion of another stress in French: | ['ve' lo] | (target = [ve' lo]) | <i>vélo</i> ‘bike’ |
| | (b) Inclusion of another stress in English: | ['na' dʒ] | (target = [ə' nʌðə]) | <i>another</i> |

We propose that stress shift derives from prosodic TRANSFER: it occurs when the child applies the stress pattern of one language in the other. The proportion of mismatches due to prosodic transfer is higher in English (72%) than in French (56.7%). This indicates that the dominant language (a) is the more likely source of prosodic transfer, and (b) is more resistant to having its parameter settings replaced by those of the less dominant language. We propose that the inclusion of another stress corresponds to prosodic structure BLENDING: the child blends the stress patterns of the languages, which leads to productions with two stresses, each one of which is faithful to the target stress in one of the two languages. When blending applies, the two prosodic systems thus co-occur. We propose that the dominant language is targeted more frequently by structure blending than prosodic transfer, consistent with the idea that the dominant language will be less vulnerable to the influence of the competing system.

References:

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