Stress Shift
in English Rhythm Rule environments:

Effects of Prosodic Boundary Strength and Stress Clash Types

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It is well-known that the early assignment of pre-nuclear phrasal prominence in sequences like *THIRteen MEN vs. thirTEEN,* (*aka.* the **Rhythm Rule**, or post-lexical stress shift), is an optional phenomenon. This dissertation focuses on the factors that encourage the application of the Rhythm Rule and on how stress shift is realized in English.

The aim is to answer two sets of questions related to why and how stress shift occurs in English: 1a) Does prosodic boundary strength influence stress shift? 1b) Does the adjacency of prominences above the level of the syllable encourage stress shift? 2) How is stress shift realized? a) Is stress shift only a perceptual phenomenon? and b) Which syllables, if any, change acoustically when stress shift is perceived?

To answer these questions, 4 experiments were designed. The first 3 experiments test whether the strength of the prosodic boundaries before and after the target word, *e.g. canteen* influences stress shift. Results of the boundary strength manipulations show that both a stronger prosodic boundary before, or a weaker boundary after the target, e.g., *canteen* can induce a significantly higher incidence of stress shift onto the initial syllable, e.g. *can-* in *canteen.* The fourth experiment tests the definition of stress clash in English in cases like *fourteen candles* where the two main lexical prominences are strictly adjacent at the syllable level, in *fourteen canoes* where the prominences are not adjacent at the syllable level but adjacent at the higher levels of the prosodic hierarchy, and in *fourteen canteens* where the main lexical prominences are not adjacent, and do

not clash. Results of the clash experiment show that the strictly adjacent cases, e.g. *fourteen candles* and the non-adjacent clash cases, e.g. *fourteen canoes* show a significantly higher rate of stress shift compared to the non-clashing cases, e.g. *fourteen canteens*. These results provide empirical support for the Standard Metrical Theory claim (e.g., Selkirk, 1984; Nespor & Vogel, 1989) that 1) stress clash matters in triggering stress shift and that 2) stress clash in English is defined at the higher prosodic levels and not restricted to the syllable level as indirectly assumed in a growing body of research, e.g., Vogel, Bunnel & Hoskins, 1995; Tomlinson, Liu & Fox Tree, 2014.

Along with the establishment of prosodic boundary strength as one of the predictors influencing stress shift, another important contribution of the thesis is providing empirical evidence that the English Rhythm Rule is not solely a perceptual phenomenon and that it is associated with acoustic correlates. The results also provide counterevidence to the deletion formulation of the Rhythm Rule (Gussenhoven, 1991) which stipulates that the impressions of stress shift are solely associated with changes of prominence in the last accentable syllable of the target (e.g. *–teen* in *canteen*).

Briefly, multiple factors can influence the application the Rhythm Rule and the present research provides a clearer picture of the factors that encourage its application. The definition of stress shift in English is tested empirically and provides evidence that 1) stress clash clearly influences stress shift, 2) it is not accurate to define stress clash in English simply as the adjacency of two lexical stresses at the syllable level. English stress clash is defined at the higher levels of prosodic constituency. Along with stress clash, the present research identified another predictor of stress shift namely the strength of the prosodic boundaries surrounding the target word, i.e., the locus of the stress shift process. This supports the idea that prominence structure is sensitive to prosodic structure and provides empirical support for the idea that the phonology-syntax relationship is encoded via prosodic structure (see Shattuck-Hufnagel & Turk, 1996) and references therein).

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