On the function of stress rhythms in speech: Evidence of a link with grouping effects on serial memory

Abstract

Language learning requires a capacity to recall novel series of speech sounds. Research shows that prosodic marks create grouping effects enhancing serial recall. However, any restriction on memory affecting the reproduction of prosody would limit the set of patterns that could be learned and subsequently used in speech. By implication, grouping effects of prosody would also be limited to reproducible patterns. This view of the role of prosody and the contribution of memory processes in the organization of prosodic patterns is examined by evaluating the correspondence between a reported tendency to restrict stress intervals in speech and size limits on stress-grouping effects. French speech is used where stress defines the endpoints of groups. In Experiment 1, 40 speakers recalled novel series of syllables containing stress-groups of varying size. Recall was not enhanced by groupings exceeding four syllables, which corresponded to a restriction on the reproducibility of stress-groups. In Experiment 2, the subjects produced given sentences containing phrases of differing length. The results show a strong tendency to insert stress within phrases that exceed four syllables. Since prosody can arise in the recall of syntactically unstructured lists, the results offer initial support for viewing memory processes as a factor of stress-rhythm organization.