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***Constraints on memory for tonal patterns: A structuring principle of speech prosody***

**Abstract**

This presentation examines intonation in speech and in recall. The problem that is addressed is illustrated by reference to exploratory observations of 14 speakers' recall of nonsense syllables. In the test, Ss were encouraged to recall series "rhythmically". Acoustic waveforms are used to show that Ss' responses present hierarchical patterns where pitch (F0) contours can subsume one or more stress groups. Such patterns produced for syntactically unstructured series are strikingly similar to those found in speech, where prosodic words (marked by an F0 contour) can subsume one or more feet (marked by stress). The observations present a fundamental puzzle: contrary to linguistic theory, prosodic hierarchies do not derive from syntax but relate to processes of serial memorization. The working hypothesis is that restrictions on memory for intonation contours of syllable beats may correspond to restrictions on the extent of intonation contours in spontaneous speech. Statistics presented by Boucher (this Congress) show a correspondence between size-limits on stress intervals in speech and limits to grouping effects on serial recall. However, descriptive statistics are lacking with respect to the extent of F0 contours in speech. This study will present the results of an acoustic analysis of ten French speakers (20 min. of speech per subject). Presently, counts of contours converted in semi-tones for five of the Ss show a sharp decline for patterns containing more than eight syllables. These observations will be complemented by an experiment (underway) involving the presentation of series of nine to fifteen isochronic syllables (3.0 to 4.7 sec.) bearing rise-fall contours extending from three to fifteen syllables. Ss' successful recall of the tonal patterns is expected to decline at a point matching the size-limit of F0 contours in spontaneous speech. Both sets of results are discussed by reference to linguistic theory and the function of prosodic marks.

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