Phonology as Human Behavior: A prosodic study of high functioning autism

Hila Green and Yishai Tobin (Ben-Gurion University of the Negev)

This paper applies the Autosegmental Metrical (AM) theory and the ToBI (Tones and Break Indices) framework which we have adapted for Israeli Hebrew (IH). Due to the fact that there has been very little research in IH prosody and no annotation system whatsoever, we used Hebrew-speaking children without developmental disorders (WDD) as representative of typical prosody for their age group. The prosodic patterns of 10 WDD children was then compared and contrasted with the prosody of 10 matched children diagnosed with Autism Spectrum Disorders-High Functioning (ASD-HF) using a phonetic analysis of prosodic features. Our study employed Read Aloud (RA) and Semi-Spontaneous Speech (S) elicitation tasks.

Our analysis shows greater variation in frequency values or pitch range in the ASD-HF group which can be subdivided into three distinct groups regarding their pitch range: wide, narrow and typical. ASD-HF subjects exhibited a limited repertoire of prosodic patterns within the norm of the language which are repeatedly used. Conversely, the prosodic patterns found in the WDD controls showed a greater number and a larger degree of variation for the same tasks creating a more diverse and flexible sounding prosody.

We explained the results according to: (a) the definition that language is a symbolic tool whose structure is shaped both by its communicative function and the characteristics of its users and (b) the principle that language represents a compromise in the struggle to achieve maximum communication through the use of minimal effort associated with the theory of Phonology as Human Behavior. Although the ASD-HF subjects are capable of producing a wide range of prosodic patterns – they concentrate on a limited repertoire of the most basic prosodic patterns which create clear-enough communication.