Processing Speech Prosody

The speech signals contains both spectral information (usually conveying information about segments) and suprasegmental information (duration, intensity, f0 which convey prosodic information, such as speech rate, rhythm, accentuation, intonation). Depending on the native language, the listener needs to process the speech signal differently and give more emphasis to certain acoustic cues than to others.

In this talk we present two studies that investigate how f0 information is attended to and stored in listeners from different language backgrounds with a focus on how spectral and f0 information is weighted against each other. Results of a speeded ABX nonwords task and a word learning experiment show that potential lexical f0 information (Chinese listeners) is attended to more closely than potential postlexical f0 information (Dutch listeners) which is processed differently from non-linguistic f0 variation (Dutch listeners). Furthermore, Chinese listeners classify the non-words much more readily along the f0 dimension than Dutch listeners. In learning novel picture-word associations, listeners from free stress languages (German, Russian) appear to be more in a better position to lexically encode lexical tone than speakers from a fixed stress language (French), suggesting that experience in storing one kind of suprasegmental lexical contrasts aids in storing another kind of suprasegmental lexical contrast. Chinese listeners attend less to segments than to tone. Taken together, our results suggest that the linguistic function f0 plays in ones' native language shapes the prelexical processing of f0.