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ERPs and speech sound perception - possibilities and restrictions

Maija Peltola
University of Turku, Department of Phonetics, FIN-20014 Turku, Finland

Speech sound perception is a complex combination of attention independent and attention dependent processes which both contribute to the final goal of understanding the spoken message. The preattentive level has become more accessible to research and event related potentials (ERPs) can easily be used to study the automatic processing of the speech signal. In particular, the mismatch negativity (MMN) response offers a tool for investigating the manner in which speech sounds are encoded as neural representations. Cross-linguistic studies revealing different kinds of representations in native speakers of different languages form the core for further studies, which have shown the plasticity of the brain in forming new representations for non-native sounds in various types of learning environments. However, despite all these promising advances there are still some restrictions connected both with the methodology available and the conclusions that can be reached on the basis of the occasionally contradicting results. Also, since results obtained by using attention independent and dependent methods are not always compatible, some potentially significant results may never reach the attention that they deserve, even if this incompatibility may be one of the keys into the understanding of the complicated mechanisms underlying speech sound perception.