

Looking for the Phonological Mapping Negativity (in all the wrong places)

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The Phonological Mapping Negativity (PMN) event-related potential (ERP) component has been, in the past, primarily linked to phonological mapping and mismatch, as part of processes of lexical retrieval, in speech perception and spoken-word recognition (e.g. Connolly and Phillips 1994). However, an updated theory suggests the PMN “serves as a neural marker for the analysis of acoustic input” (Newman and Connolly 2003). In addition, a recent review of the limited, existing literature on the PMN has advanced concerns regarding methodological shortcomings and contradictory findings of previous studies (Lewendon et al. 2020).

Recently, despite limited and contrasting evidence in regards to the exact role of the PMN in processes of spoken-word recognition, clinical research has been published that focussed on the elicitation of the PMN as a direct marker of phonological processing ability in patient populations, including Wernicke’s aphasia patients (Robson et al. 2017). Considering past methodological limitations, the limited study sample, and inconsistencies among findings in the literature on the PMN, an in-depth investigation into the exact nature of the component has been long overdue. Three novel experiments were carried out to test the elicitation of the PMN in contexts of auditory, phonetic and phonological mismatch in the absence of lexical retrieval, with the aim of testing the sensitivity of the PMN to phonological and phonetic mismatch alone. The talk will focus on discussing the findings of the three experiments in the context of current and past theories of the PMN.