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Analysis of Mismatch Negativity as an index of the evaluation of sociolinguistic meaning

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How quickly do listeners map phonetic variation onto social meaning? We report an electroencephalography (EEG) / event-related potential (ERP) study with Rio de Janeiro Brazilian Portuguese listeners, examining whether sociolinguistic familiarity or bias modulate mismatch negativity (MMN). In an oddball design, we contrasted (i) palatalization of /t/ before /i/ in *tio* (meaning *uncle*), focusing on a non-local stop realization that is effectively absent in the Rio de Janeiro speech community, but typical of the pronunciation in northeastern cities, with (ii) pre-stressed nasalization in *canal* (meaning *channel*), a variable whose variants coexist locally (control). Three negative peaks emerged: Peak 1 (canonical MMN) was not sensitive to the variants' from Rio or not from Rio; Peak 2 appeared for both variables, indexing detection of within-category variation; Peak 3 was specific to palatalization, consistent with a later-stage evaluation that the stop variant is socially "non-Rio".

Keywords: Linguistics; Neuroscience; Memory; Social cognition; EEG.

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