**G130 Spatio-temporal dynamics of word production: neuromagnetic evidence**

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Language production is thought to involve a series of computations, from conceptualisation to articulation, engaging cascading neural events [Indefrey and Levelt, 2004]. In contrast, recent neuromagnetic evidence [Miozzo et al., 2016; Strijkers et al., 2017] suggests simultaneous meaning-to-speech mapping in picture naming tasks, as indexed by early (~130ms after stimulus onset) parallel activation of fronto-temporal regions to lexical semantic, phonological and articulatory information.   Here we asked to what extent such earliness is a replicable property of the spatiotemporal dynamics of word production.  We recorded the neural responses elicited by object naming using magnetoencephalography (MEG). Stimuli consisted of 128 object images from 4 categories of animals, foods, tools, clothes. Word length (20 mono- and 20 bi-syllabic words) and diphone frequency (20 high and 20 low frequency) were co-varied within categories to respectively target syllabification and phonetic encoding.  Multivoxel pattern analyses (MVPA) searchlights in sensor space distinguished the stimulus-locked spatio-temporal responses to conceptual categories early on, from ~100ms after stimulus onset, but showed no phonological effect. In the same time interval, source localisation analyses confirmed early differentiation of conceptual categories in left inferior temporal cortex. Furthermore, word length and diphone frequency triggered later effects (from ~250ms) in left inferior frontal cortex. These results point to differential spatio-temporal modulations of neural activity by conceptual preparation in regions relevant to object knowledge and by phonological variables in left inferior frontal regions supporting phonological processes.