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**Title: Representation of timing in pseudo-speech sequences**

**Study background:** Recent studies have revealed that skilled motor sequences such as precisely timed sequences of finger presses are encoded in a modular fashion - with temporal and spatial features of sequences represented separately from each other to enable flexible motor control (Kornysheva et al. 2013, Kornysheva & Diedrichsen 2014, Diedrichsen and Kornysheva 2015). While this effect has been replicated in finger movement sequences, it is unclear in how far speech sequences – ubiquitous in everyday life – follow the same encoding pattern. This project will be the first to study the presence of modular representations pseudo-speech sequences in a behavioural training paradigm.

**Potential significance:** Results will open up opportunities for future neuroimaging studies on speech like sequence acquisition, retrieval and control and may become relevant for the understanding and treatment of speech disorders like dyspraxia and stuttering.

**Your contribution:** You will be involved in running the bevioural pilots and study, adjusting the experimental setup (cogent code etc.) and co-analysing the behavioural data. Programming skills in Matlab and very good organisational skills are, and/or knowledge of speech/auditory analysis software (PRAAT or similar) or relevant Matlab toolboxes are highly desired, as well as a strong interest in procedural memory encoding and motor/speech control.

**References:**

Kornysheva K\*, Sierk A, Diedrichsen J (2013) Interaction of temporal and ordinal representations in movement sequences. *Journal of Neurophysiology 109(5):*1416-1424*.*

Kornysheva K\* **&** Diedrichsen J (2014). Human premotor areas parse sequences into their spatial and temporal features. *eLife*doi: 10.7554/eLife.030433**.**

Diedrichsen J **&** Kornysheva K (2015). Motor skilllearning between selection and execution. *Trends in Cognitive Science**19(4)*:227-233.