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## **READING DIRECT SPEECH QUOTES INCREASES THETA PHASE-LOCKING: EVIDENCE FOR CORTICAL TRACKING OF INNER SPEECH?**

Bo Yao<sup>1</sup>, Jason R. Taylor<sup>1</sup>, Briony Banks<sup>2</sup> & Sonja A. Kotz<sup>3</sup>

1 University of Manchester, United Kingdom

2 Lancaster University, United Kingdom

3 Maastricht University, Netherlands

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**Background:** Growing evidence shows that theta (4–7 Hz) oscillatory activity in the auditory cortex phase-locks to rhythms of overt speech. We asked if theta activity also encode the rhythmic dynamics of inner speech.

Previous research established that silent reading of direct speech quotes (e.g., *Mary said: "This dress is lovely!"*) elicits more vivid inner speech than indirect speech quotes (e.g., *Mary said that the dress was lovely*). As this quotation-induced inner speech shares temporal rhythms of overt speech, we hypothesized that it could also be tracked by theta oscillations.

**Aims:** We tested if quotation-induced inner speech is phase-locked by theta oscillatory activity.

**Method:** Because we cannot observe inner speech objectively, we could not directly track the phase alignment between inner speech and theta activity over time. Instead, we used electroencephalography (EEG) to measure the brain's phase-locked responses to the onset of speech quote reading where a phase reset is likely to occur as it adapts to the rhythms of inner speech.

**Results:** We found that direct (vs. indirect) quote reading was associated with increased theta phase-locking at 250–500 ms post-reading onset, with sources of the evoked activity estimated in the speech processing network.

**Conclusions:** The findings likely reflect synchronous phase resetting at the onset of inner speech and suggest a functional role of theta phase modulation in reading-induced inner speech.

**Keywords:** Inner speech, Neural oscillations, Phase-locking, Reading, Theta activity

### **Publications:**

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**E-mail contact:** Bo.Yao@manchester.ac.uk