

## **The role of time in spoken word recognition: Evidence against temporal order in lexical representations**

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A challenging problem in spoken word recognition is time: speech unfolds over time, and temporal order appears crucial for distinguishing words (*cat* vs. *tack*). Current models assume that phoneme order is explicitly represented but have struggled to satisfactorily implement this. However, work in visual word recognition (the transposed letter effect) suggests that order is coarsely encoded, if at all. We examined whether this is true in spoken word recognition by measuring activation for phonological anadromes, words with the same phonemes in the opposite order. Participants performed a visual word task with displays containing a target (*cat*), anadrome (*tack*), cohort (*cash*), and unrelated item (*mill*). We found more fixations to anadromes than both unrelated words ( $p < 0.0001$ ) and words with an overlapping vowel (*tap*;  $p = 0.011$ ). This challenges existing models, suggesting that temporal order may not be explicitly encoded. We discuss how fine-grained acoustic detail may allow accurate recognition without such temporal codes.