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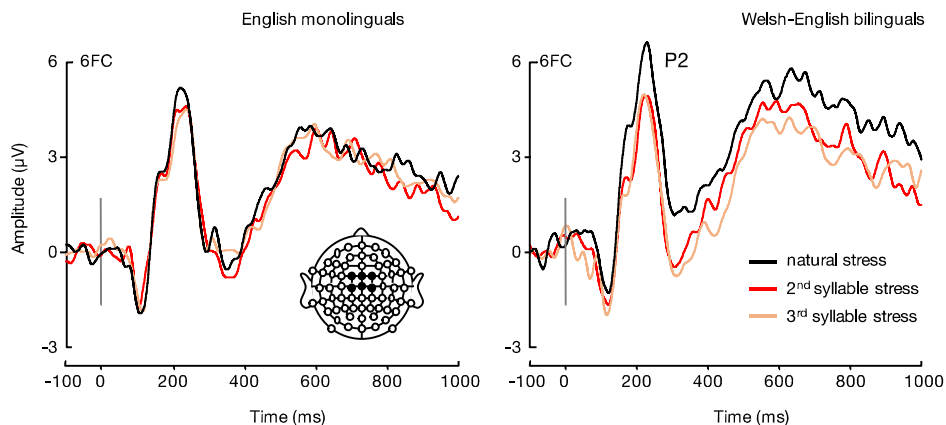
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## DOES STRESS CLOSE THE LANGUAGE GATE? INHIBITION OF UNCONSCIOUS L1 ACTIVATION

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Previous studies have shown spontaneous activation of the native language (L1) in late bilinguals tested in their second language (L2; Thierry & Wu, 2007; Wu & Thierry, 2010). On the other hand, prosodic information is known to influence lexical access in spoken word comprehension (van Donselaar *et al.*, 2005; Reinisch *et al.*, 2010). Therefore, although it has never been demonstrated, it is likely that the segmental and suprasegmental properties of spoken words modulate language non-selective access in bilinguals.

Here, we investigated whether lexical stress—a suprasegmental property—modulates unconscious native language access in fluent Welsh-English bilinguals. In an implicit priming paradigm, we presented correctly or incorrectly stressed English word primes followed by visual word targets. In critical trials, prime-target pairs concealed a sound repetition via Welsh translation. Participants were asked to perform an irrelevant semantic relatedness task on word pairs whilst undergoing 32-channel EEG recording. Word primes were either presented with their natural first-syllable stress, or incorrectly produced with stress on the second or third syllable. Two anomalous stress conditions were included to determine whether partial resemblance to Welsh penultimate stress might differentially affect lexical access, and ERPs were time-locked to presentation of the visual target.



We focussed on the P2 component of event-related potentials, which indexes word form repetition, cloze probability, and predictability. A repeated-measures ANOVA revealed a significant effect of L1 phonological overlap ( $F_{1,11} = 7.39$ ,  $p = 0.02$ ,  $\eta^2 = 0.402$ ) and stress condition ( $F_{1,11} = 7.07$ ,  $p = 0.004$ ,  $\eta^2 = 0.391$ ) on P2 mean amplitudes in Welsh-English participants. Critically, there was also a significant interaction between phonological overlap and stress ( $F_{2,22} = 3.52$ ,  $p = 0.047$ ,  $\eta^2 = 0.243$ ), such that P2 mean amplitude elicited in incorrect stress conditions was significantly reduced as compared to the naturally-stressed condition only when L1 phonological overlap was present. None of these effects were found in monolingual English controls ( $ps > .1$ ). We interpret the relative P2 mean amplitude increase as an index of phonological priming and an indication that bilingual participants spontaneously accessed Welsh translations only in the case of naturally stressed English primes. Thus, when processing speech in an L2 context, fluent bilinguals appear to only activate L1 representations when L2 words have natural stress, and possibly experience inhibition of native language access by anomalous suprasegmental information. More generally, this leads to the consideration that suprasegmental information is not only important in spoken language comprehension but even more so in a context of second language processing.

**References.** Thierry G and Wu YJ, 2007. Brain potentials reveal unconscious translation during foreign-language comprehension. *Proceedings of the National Academy of Sciences*, 104(30), pp.12530-12535. • Wu YJ and Thierry G, 2010. Chinese–english bilinguals reading english hear chinese. *Journal of Neuroscience*, 30(22), pp.7646-7651. • Van Donselaar, W., Koster, M. and Cutler, A., 2005. Exploring the role of lexical stress in lexical recognition. *The Quarterly Journal of Experimental Psychology Section A*, 58(2), pp.251-273. • Reinisch E, Jesse A and McQueen JM, 2010. Early use of phonetic information in spoken word recognition: Lexical stress drives eye movements immediately. *Quarterly Journal of Experimental Psychology*, 63(4), pp.772-783.