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Abstract

There are competing theories in the literature regarding the extent to which the translation of print to speech involves single or multiple routes. Regardless of the number of routes in a model, all models of reading must account for both sight vocabulary (SV) processing, which specializes in mapping whole-word representations, and phonetic decoding (PD) processing, which specializes in mapping sub-word representations. The purpose of the present work was to examine two hypotheses regarding the relationship between SV and PD: independence versus redundancy. Both behavioural and functional Magnetic Resonance Imaging (fMRI) experiments were conducted and the results supported the hypothesis that SV and PD are behaviourally and neurobiologically independent processes. Furthermore, in the interest of advancing all models of basic word recognition, the neurobiological representations of some of the sub-systems within SV and PD routes were explored and the contribution that particular brain regions make to the completion of naming particular stimuli was evaluated. Finally, basic and applied areas of research were integrated to demonstrate how diagnostic stimuli developed from basic reading research can inform us about impaired reading performance following traumatic brain injury.

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