

Phonological and orthographic overlap effects in fast priming

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We used the fast priming paradigm to examine the influence of phonological and orthographic overlap between prime and target ($N = 56$). We tested 4 types of overlap, with 40 item pairs per overlap type: (1) high-phonological high-orthographic end-overlap (P+O+: track-crack), (2) P+O+ begin-overlap (swoop-swoon), (3) low-phonological high-orthographic overlap (P-O+: bear-gear), and (4), high-phonological low-orthographic overlap (P+O-: fruit-chute). The primes and targets were controlled for length and frequency between the different types and the prime was always higher in frequency than the target. Before the eyes fixated on the target word, the target word preview consisted of a string of random consonants. When the eyes crossed an invisible boundary placed just before the target word location, the consonant string changed to the overlapping prime word (*bear*) or a prime control pronounceable non-word (*qulk*), which was presented for either 32 or 50 ms, before being replaced by the target word:

(1) Joshua picked up the| [dnlw (preview) → bear (prime) / qulk (control) → gear (target)] that he needed for his surfing trip.

Facilitatory priming, compared to the control word, was found on the single fixation and gaze duration measures for both P+O+ conditions at both prime durations, which did not differ from each other (though there was a slight numerical advantage for begin-overlap items). The single fixation duration analyses indicated that the priming effect was greater, and that the target word was read faster, when both phonology and orthography overlapped than when the overlap was only at the phonological or the orthographic level. Finally, when the overlap was only phonological, no priming was observed at the shortest prime duration.

The evidence suggests that, unlike what has been found in masked priming lexical decision tasks (e.g., Davis & Lupker, 2006), the presence of an orthographic neighbor does not inhibit reading. Further analyses indicated that this reversal of the orthographic neighbor effect was not due to syntactic or larger sentential priming during reading. Together, these results point to a substantially greater reliance on orthographic information during reading and indicates that conflicting phonological information can be easily ignored. At the same time, consistent phonological information can slightly boost recognition.

We will discuss these results in light of previous fast priming results and recent models of word recognition (e.g., the bi-modal interactive activation model, Grainger & Holcomb, 2009).

References

- Davis, C. J., & Lupker, S. J. (2006). Masked inhibitory priming in english: evidence for lexical inhibition. *Journal of Experimental Psychology: Human Perception and Performance*, 32, 668-687.
- Grainger, J., & Holcomb, P. J. (2009). Watching the word go by: On the time-course of component processes in visual word recognition. *Language and Linguistics Compass*, 3, 128-156.