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Orthography-Semantic Consistency contribution to explaining semantic effects in masked morphological priming.

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The role of semantics in the early stages of morphological processing has been extensively studied, but results have been at times inconsistent.
To address this issue we propose the application of Orthography-Semantic Consistency (OSC), a measure of how well the meaning of a given word can be predicted from its form. OSC is operationally defined as the degree of semantic relatedness between a word and its orthographic relatives, computed as the frequency-weighted average semantic similarity between the meaning of a given word and the meanings of all the words containing that very same orthographic string (Marelli et al., 2015, QJEP, 68(8), 1571-1583).

OSC can provide a different perspective on morphological effects in masked priming. Since the orthographic word-set on which OSC is computed is constituted by words that could all in principle be used as primes, and the contribution to OSC of each orthographic relative is determined by its frequency, a straightforward prediction of the algorithm is that priming magnitude should be modulated by an interaction between OSC and prime frequency. We tested this hypothesis on a dataset containing data from seven masked priming studies. This analysis shows indeed that the impact of the prime is crucially qualified by its frequency in the semantic cohort activated by the target orthography, as captured by OSC.

This result suggests that semantics plays a role at early stages of visual word recognition (as captured by masked priming paradigms). However, the activated semantic network is crucially limited by the orthographic information associated to the word. In this perspective, the traditional dichotomy between form-before-meaning and form-with-meaning accounts could be reformulated in a unique approach postulating a deep entanglement between orthography and semantic features.

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