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Is holistic processing of written words modulated by phonology?

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Highlights

- Investigated whether holistic processing of visual words is modulated by phonology.
- Compared the word composite effect for phonological consistent versus phonological inconsistent words.
- Evaluated whether the potential modulation by phonology of the word composite effect is fast and automatic.
- The results showed that phonologically consistent words showed a robust composite effect while no such effect was found for phonologically inconsistent words.
- The modulation of the word composite effect by phonology is automatic and happens rapidly.
- Holistic processing of written words is affected by fast and automatic access to lexical phonological representations.

Abstract

Holistic processing, a hallmark of face processing, has been shown for written words, signaled by the *word composite effect*. Fluent readers find it harder to focus on one half of a written word (e.g., the first syllable of a CV.CV word) while ignoring the other half (e.g., the second syllable), especially when the two halves are aligned rather than misaligned. Given the linguistic nature of written words, in the present study, we examined whether the word composite effect is modulated by phonology. In Experiment 1, participants saw two sequentially presented CV.CV words and had to decide if the left half (first syllable) was the same or not, regardless of the right half. The word pairs were either *phonologically consistent* (univocal orthography to phonology mapping; e.g., TI is always /ti/ in Portuguese) or *inconsistent* (orthography can map into different phonological representations; e.g., CA can correspond to /ka/ or /kɛ/). The word composite effect was found for phonologically consistent words but not for phonologically inconsistent words. In Experiment 2, timing of trial events was reduced to test whether the influence of phonology was fast and automatic. Similar to what was found in Experiment 1, the word composite effect was found only for phonologically consistent words. The faster trial events in Experiment 2 rendered it less likely that the influence of phonology in word composite effect is merely a result of strategic processing. These findings suggest that holistic processing of visual words is modulated by fast and automatic activation of lexical phonological representations.

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Keywords

Word composite effect; Holistic processing of visual words; Phonology; Grapheme-phoneme consistency

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