

## Orthographic effects in L1 speech production

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Orthography is known to influence first language (L1) speech perception [1] and second language speech production and perception [2]. Research into orthographic effects in L1 production is scarce and yielded mixed results [3, 4]. No research has yet examined orthographic effects on phonetic characteristics of L1 speech production. The present study addressed this gap by testing whether inconsistent orthographic forms affect speech sound production in L1. To this end, we investigated L1-Dutch speakers' production of /s/, which can be spelled <s> (more frequent spelling) or <c> (less frequent spelling) elicited in a pseudoword reading task. We considered four measures: center of gravity (CoG) in Hz, category compactness (standard deviation [SD] of the CoG), duration in ms, and speech onset time (SOT) in ms. First data of 10 L1-Dutch speaking young adults (data collection ongoing, final N=40 expected by March 2023) show that /s/ is produced with less variability when spelled with the more frequent orthographic form <s>, indicating more compact speech sound categories. In addition, pseudowords in which /s/ is spelled <s> elicit shorter SOT, indicating faster processing. No significant differences in CoG and duration were observed between <s> and <c> spellings. These findings demonstrate that the orthographic code affects L1 speech production suggesting that learning to read during childhood recalibrates speech sound categories that are already in place. As such, these results have important implications for models of L1 speech production.

### References

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