

# The effects of orthographic consistency at different levels of speech processing in Spanish beginning readers

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## The orthographic consistency effect (OCE)

Spoken words with **consistent** grapheme-to-phoneme mappings are processed and recognized faster than words with **inconsistent** grapheme-to-phoneme mappings (Ziegler & Ferrand, 1998).

|              |    |             |
|--------------|----|-------------|
| <b>globe</b> | vs | <b>name</b> |
| /əʊb/        |    | /eɪm/       |
| <obe>        |    | <ame> <aim> |
|              |    | flame claim |

These effects have been shown across different opaque orthographies, such as French and Portuguese (Ventura et al., 2004). However, consistency effects have almost exclusively been studied at the word level - *lexical decision and word reading tasks* - and in adult participants (Pattamadilok et al., 2007).

## Aims of the present study

- Investigate the OCE in a highly **consistent orthography** such as Spanish
- Move from the word to a more fine-grained level – **phonemic level**
- Test the OCE effect in **early readers** – 60 Spanish second-graders (7 years; 5 months)

### WORD LEVEL

#### Word-Pseudoword reading task

| CONSISTENT              |                         | INCONSISTENT            |                         |
|-------------------------|-------------------------|-------------------------|-------------------------|
| W                       | PW                      | W                       | PW                      |
| planta                  | duanta                  | balcón                  | calbon                  |
| /p/ /l/ /a/ /n/ /t/ /a/ | /d/ /w/ /a/ /n/ /t/ /a/ | /b/ /a/ /l/ /k/ /o/ /n/ | /k/ /a/ /l/ /b/ /o/ /n/ |

### PHONEMIC LEVEL

#### Phoneme monitoring task (Oddball paradigm)

**Consistent** vs **Inconsistent** phonemes as deviants

Version 1: G -> P inconsistency

/k/ /k/ /f/ /k/ /k/ /k/ /θ/

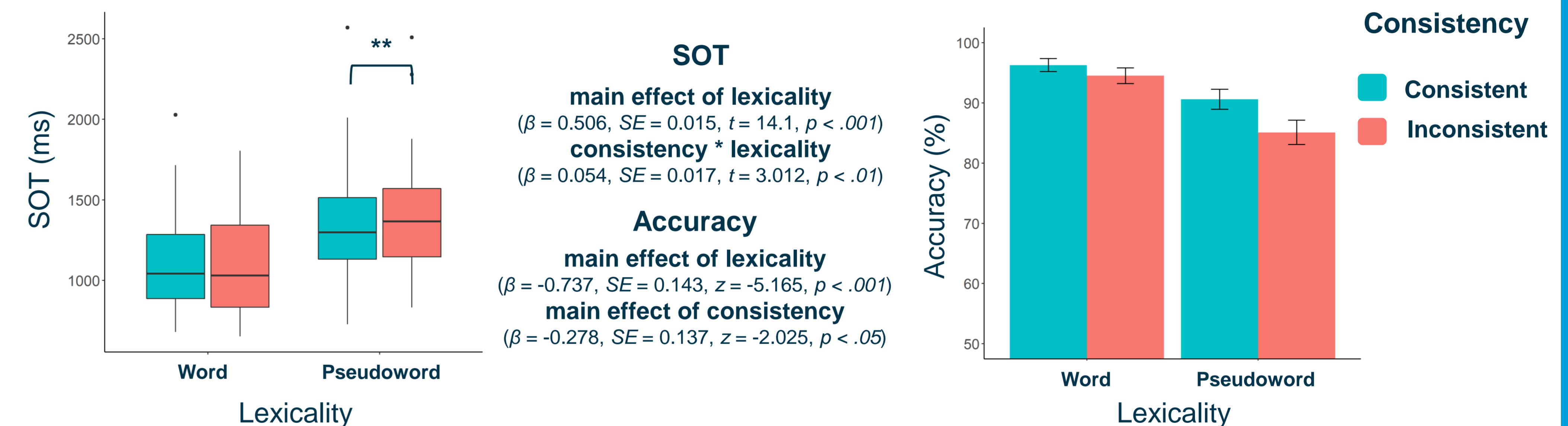
Version 2: P -> G inconsistency

/f/ /f/ /t/ /f/ /f/ /f/ /f/ /k/

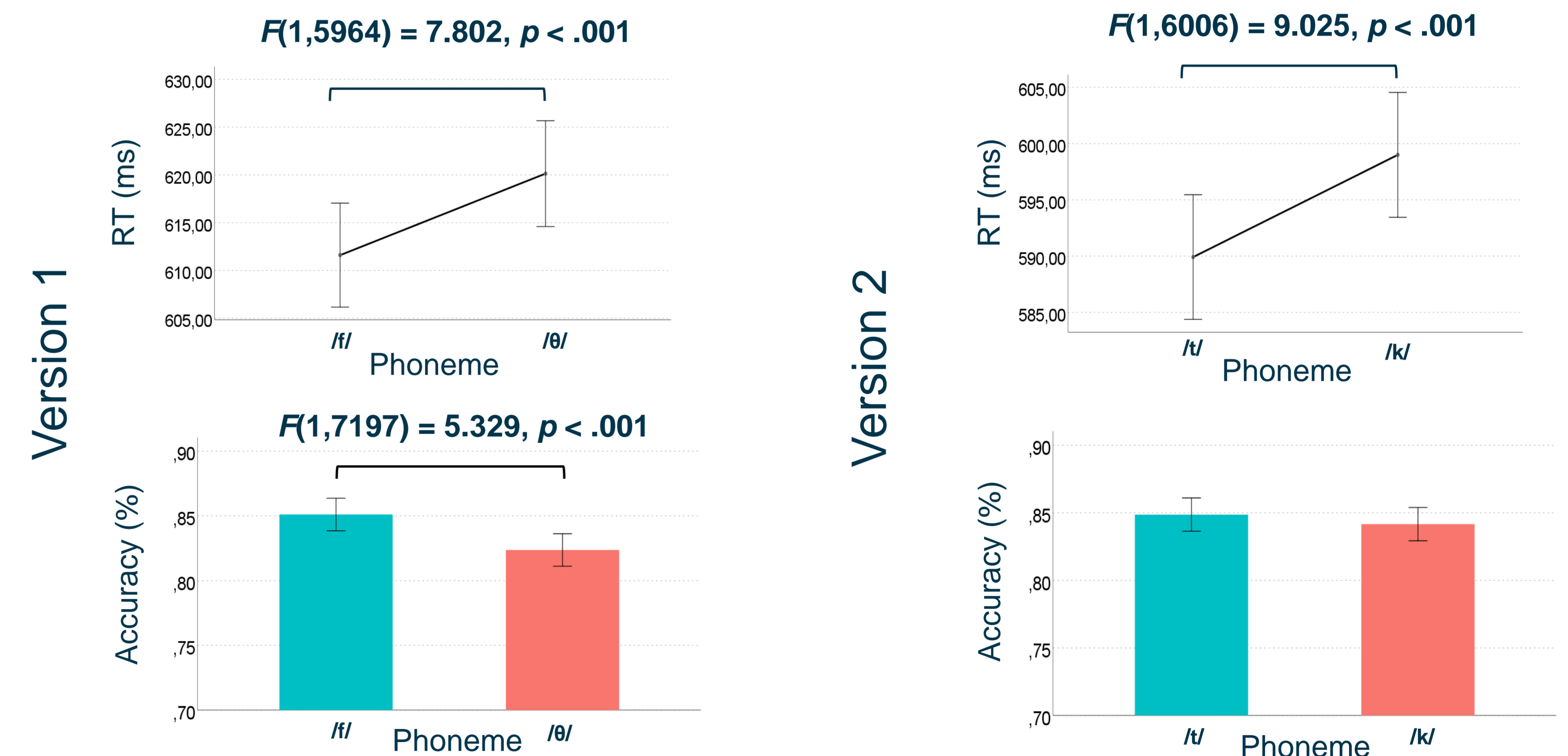


## Results

### Word-Pseudoword reading task



### Phoneme monitoring task



## Discussion

- The **OCE** is present even in a language with few grapheme-to-phoneme inconsistencies such as Spanish
- Reading task – consistency influences reading performance both in lexical reading and decoding
- Phoneme monitoring task – consistency effects arise even when no orthographic information is presented
- **Overall these findings prove that orthography affects language beyond reading**
- Future research will focus on the developmental trajectory of this effect through a longitudinal study starting from kindergarten – **prereaders** - and going up to fourth grade - **advanced readers**