

## A perceptual problem, not a knowledge deficit

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### Background

#### Problem

English **third-person-singular (3SG) –s**: among the hardest functional morphemes for L2 learners (e.g., Lardiere, 1998)

#### Potential Causes

- **Representational** deficits (Jiang, 2004; Li & Yang, 2022)
- Problems with **input processing** (Slabakova, 2019)

#### Sentence Position Principle (Barcroft & VanPatten, 1997)

- Morpheme position affects perceptual salience
- **Sentence-medial** harder than **sentence-final**

#### Previous Findings on Sentence Position Effects

- Sentence-medial –s indeed harder for L1-English children than sentence-final –s (Sundara et al., 2011)
- No empirical studies testing L2 learners

### Research Questions

1. **Is L2 learners' persistent difficulty with 3SG –s a perceptual or representational problem?**
2. **Does sentence position contribute to the difficulty?**

### Method

#### Participants

1. Adult L1-English controls (**L1 group**)
2. Adult L1-Korean L2-English learners (**L2 group**)

#### Participant Information

Group	n	Age		Cloze		AOA	
		Mean	SD	Mean	SD	Mean	SD
L1	24	22.2	2.6	38.9	5.9	—	—
L2	23	24.8	4.5	31.7	9.3	6.9	1.6

Note. Cloze test (max = 50; Brown, 1980) for English proficiency

#### Main tasks

1. **Visual-world eye-tracking task**
  - Real-time perception of 3SG –s
2. **Fill-in-the-blank task**
  - Offline knowledge of 3SG –s

#### Design for both tasks

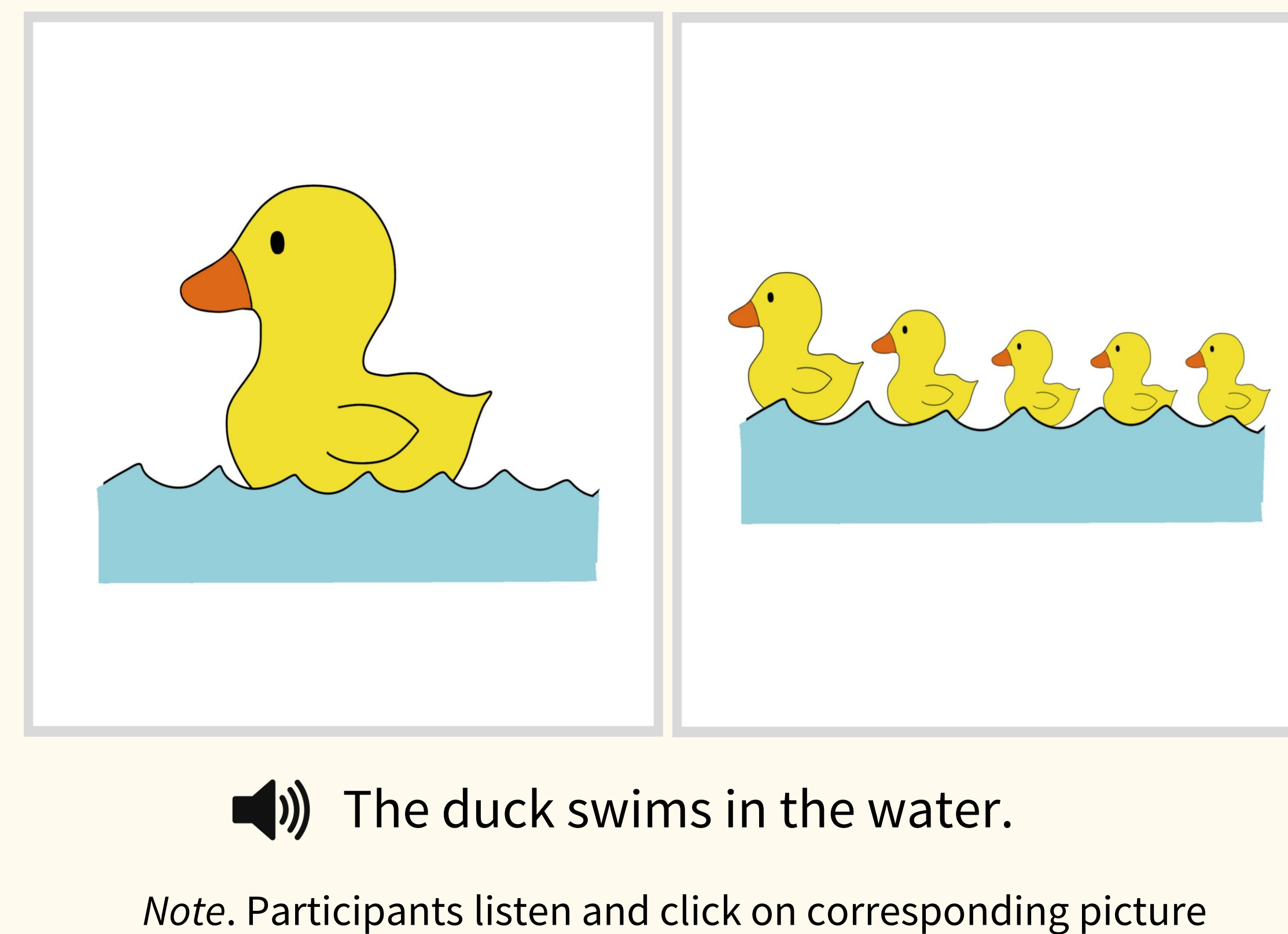
- 2 × 2 factorial design crossing:
  - **POSITION** (sentence-medial vs. sentence-final)
  - **NUMBER** (singular subject vs. plural subject)
- 16 critical items (4 conditions × 4 tokens); 44 fillers

#### Critical conditions for both tasks

Position	Number	Example Stimulus
Medial	Singular	The duck swims in the water.
Medial	Plural	The ducks swim in the water.
Final	Singular	In the water, the duck swims.
Final	Plural	In the water, the ducks swim.

Note. Plural marking on subject masked by initial sibilant on verb (see also Johnson et al., 2005); like in Sundara et al.'s (2011) stimuli, 3SG –s longer in duration in final position (mean = 238 ms) than in medial position (mean = 142 ms).

### Eye-Tracking Trial



### Fill-in-the-Blank Trial

The duck \_\_\_\_\_ in the water.

1. like 2. likes 3. swim 4. swims

#### If difficulty with 3SG –s is perceptual...

- **Eye-tracking**: L2 group slower and less accurate than L1 group

- **Fill-in-the-blank**: Both groups at ceiling

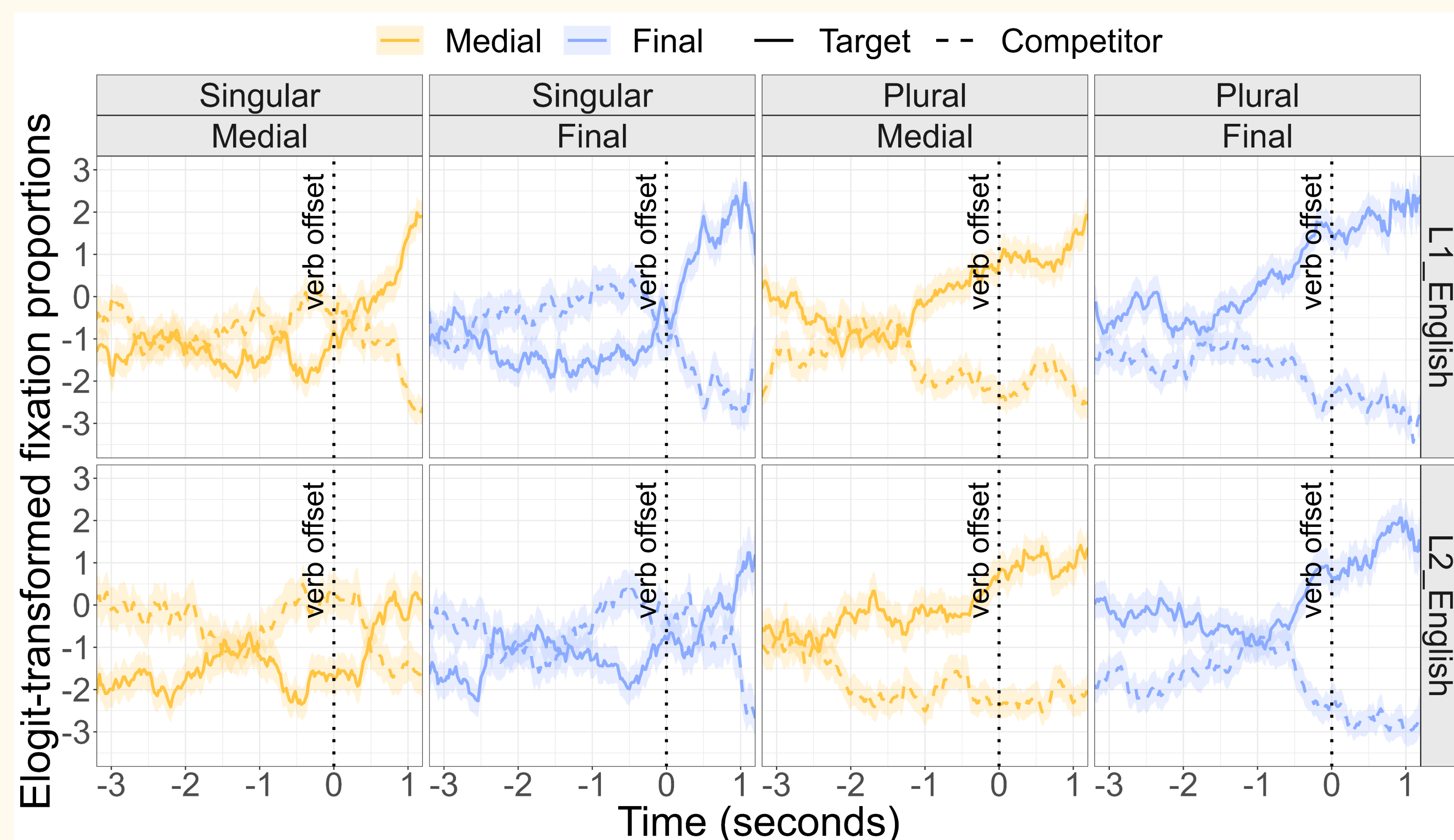
#### If sentence position contributes to difficulty...

- **Eye-tracking**: L2 group faster and more accurate in final position than medial position

- **Fill-in-the-blank**: L2 group more accurate in final position than medial position

### Results

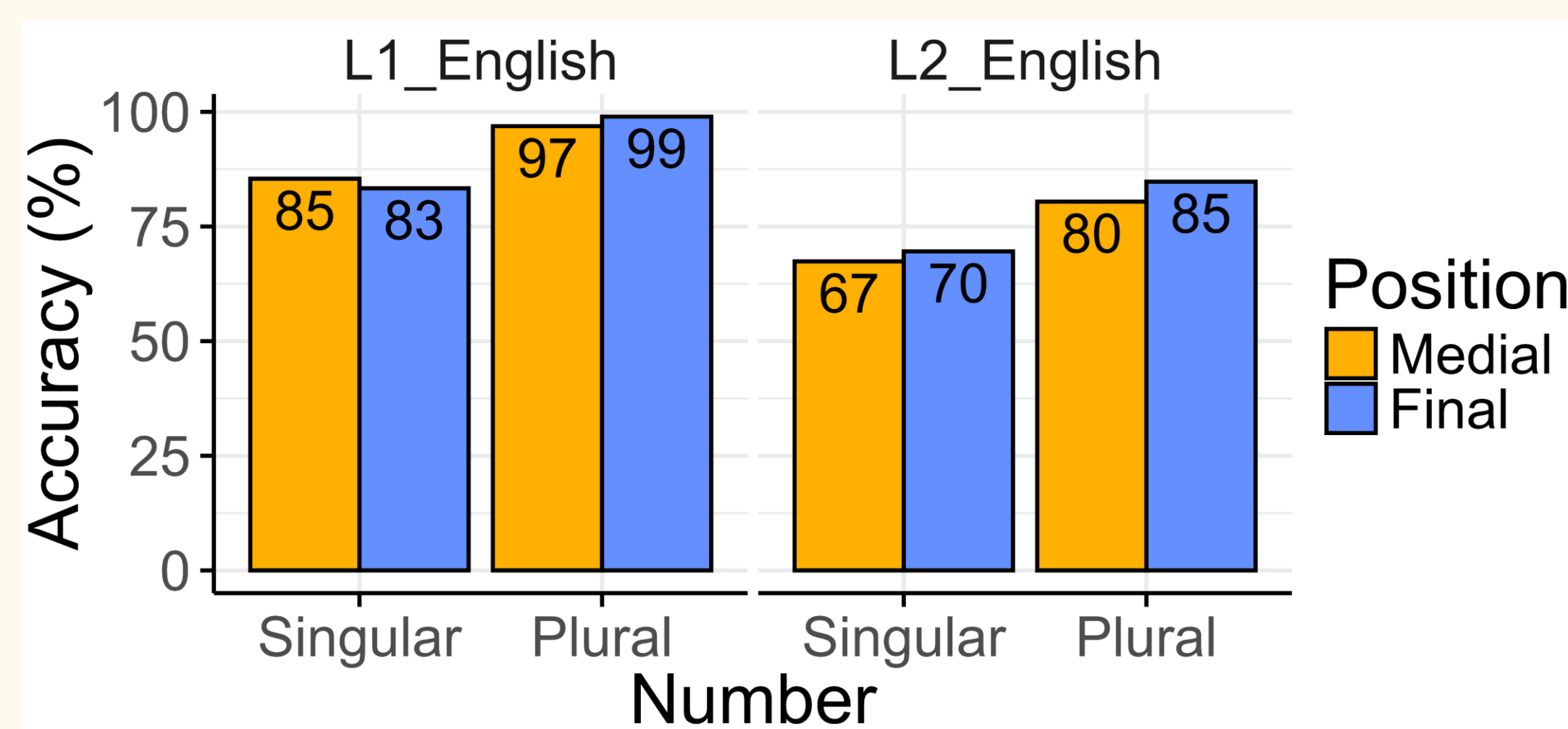
Figure 1. Elogit-transformed proportion of fixations to Target and Competitor in the eye-tracking task



Both groups:  
Significantly faster to perceive final –s than medial –s

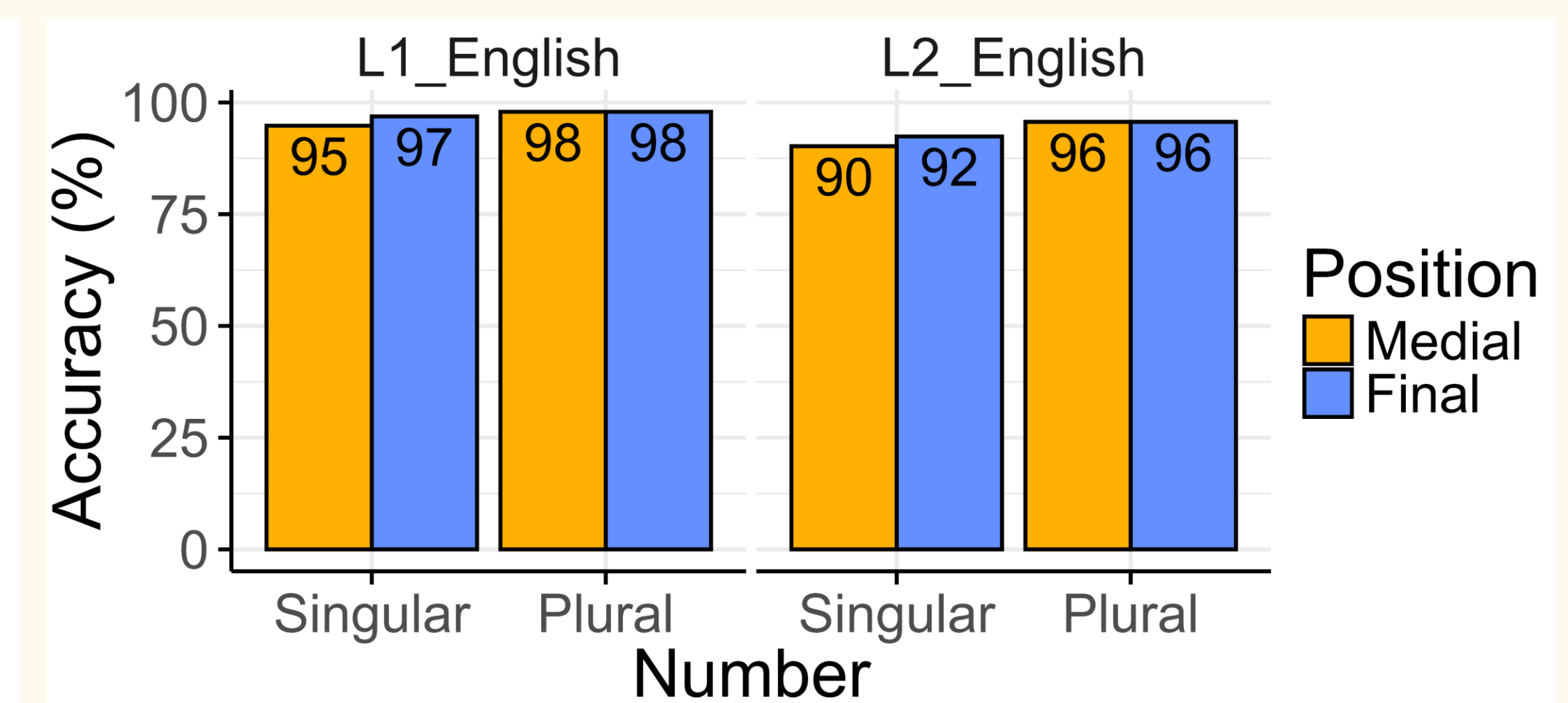
L2 group:  
Significantly slower morpheme perception than L1 group

Figure 2. Mean picture-selection accuracy in the eye-tracking task



L2 group: Significantly less accurate than L1 group

Figure 3. Mean response accuracy in the fill-in-the-blank task



Both groups: Near ceiling across positions

### Conclusions

**RQ1: Is L2 learners' persistent difficulty with 3SG –s primarily a perceptual problem? → Yes!**

- ✓ **Eye-tracking**: L2 group slower than L1 group
- ✓ **Picture-selection accuracy**: L2 group less accurate than L1 group
- ✓ **Fill-in-the-blank accuracy**: Both groups near ceiling

**RQ2: Do L2 learners have more trouble with medial –s than final –s? → Maybe**

- ✓ **Eye-tracking**: L2 group faster in final than medial on
- ⚠ **Picture-selection accuracy**: L2 group only numerically more accurate in final than medial position
- ⚠ **Fill-in-the-blank accuracy**: Virtually identical performance across positions (ceiling effect)

Note. Possible –s more salient in final position only because longer there

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**Acknowledgments:** Our sincere thanks go to Amber Camp and Pui Yee 'Ruby' Lee for helping us create audio and visual stimuli for the eye-tracking task. For help of various kinds, we would also like to thank Holger Hopp, Bonnie D. Schwartz, the Language Acquisition Research Group at UH, the Research Colloquium in Linguistics at TU-BS, our anonymous reviewers, and all our participants. This poster contains icons from Flaticon.com.

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