

# The effect of phonological knowledge on word learning in second language acquisition

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## Introduction

### L1 word learning is strongly related to phonological knowledge

- ◆ Studies of English speaking children
- ◆ IN vs. OUT sounds
  - IN – correctly produced sounds
  - OUT – incorrectly produced sounds
- ◆ Word learning
  - Early stage: IN words > OUT words (Leonard, et al., 1981)
  - Later stage: IN words < OUT words (Storkel, 2004)

### L2-L1 phonological mapping influences L2 perception

- ◆ L1 Japanese L2 English speakers (Guion, et al., 2000)
  - /t, s, w, v, b/ → IN
  - /r, l, θ/ → OUT

### Phonology and L2 word learning

- ◆ Past studies showed that phonology affects L2 word learning
  - Phonological short-term memory
    - Nonword repetition (e.g., Speciale, et al., 2004)
    - Suppression (Papagno, et al. 1991)
  - Phonotactic patterns (Feldman & Healy, 1998)
- ◆ The relationship between L2-L1 phonological mapping and L2 word learning is unknown
- ◆ Question
  - Is L2 word learning influenced by the speaker's phonological knowledge of the target sounds (IN vs. OUT) in the word?

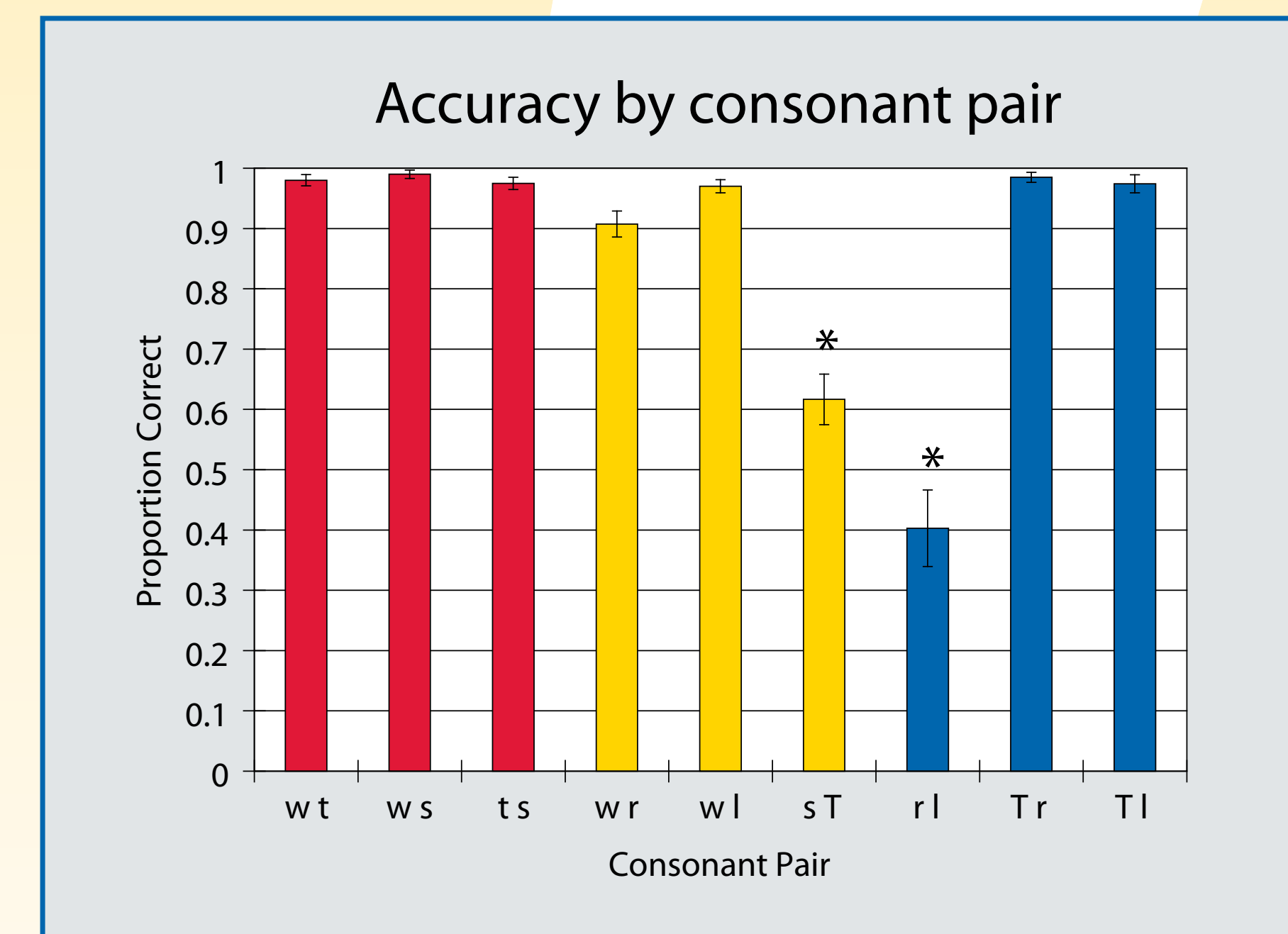
## Method

### Participants

- ◆ n = 24
- ◆ L1 Japanese – L2 English
- ◆ Ages 19 – 33
- ◆ High English proficiency (TOEFL score ≥ 570 or equivalent)
- ◆ Normal speech, hearing, and cognition

### Target consonants

- ◆ IN: /s, t, w/
- ◆ OUT: /r, l, θ/
- ◆ IN vs. OUT sounds were verified through a perception task



### Auditory stimuli (24 CVC nonwords)

- ◆ 4 CVC nonwords selected for each of the 6 target consonants (IN = /s, t, w/; OUT = /r, l, θ/)

### Visual stimuli

- ◆ Each of the nonwords were paired with a picture of a novel object (Kroll & Potter 1984)
- ◆ Examples

Type	IN			OUT		
Novel object						
Nonword	seib	wis	touk	θed	ruk	las

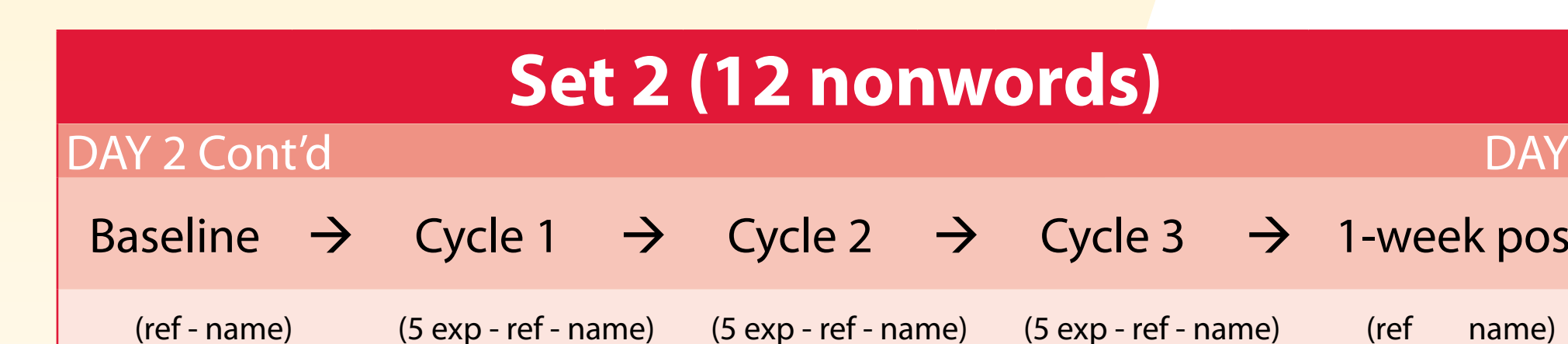
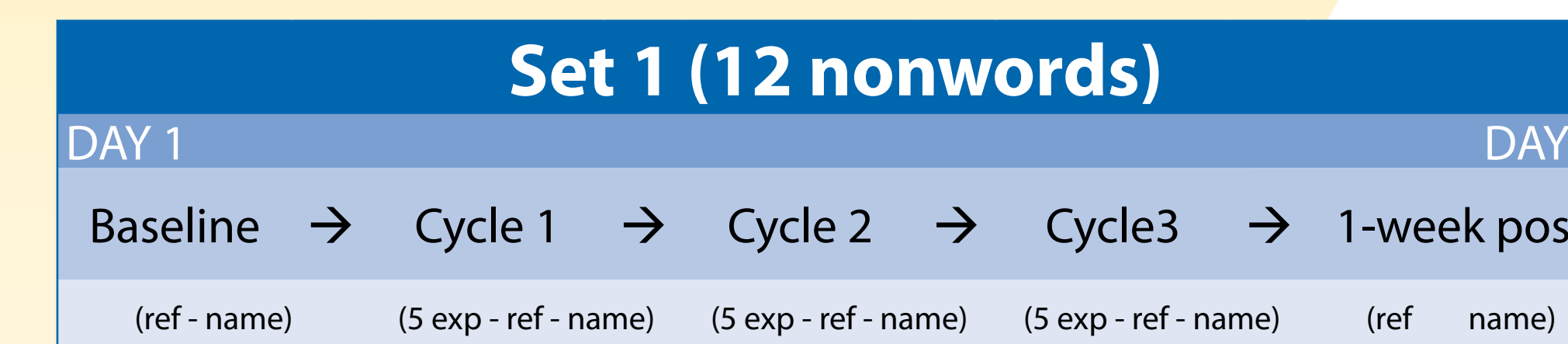
### Exposure script

- ◆ This is a *ruk*. Say *ruk*. Find the *ruk*. Yes, that's the *ruk*.

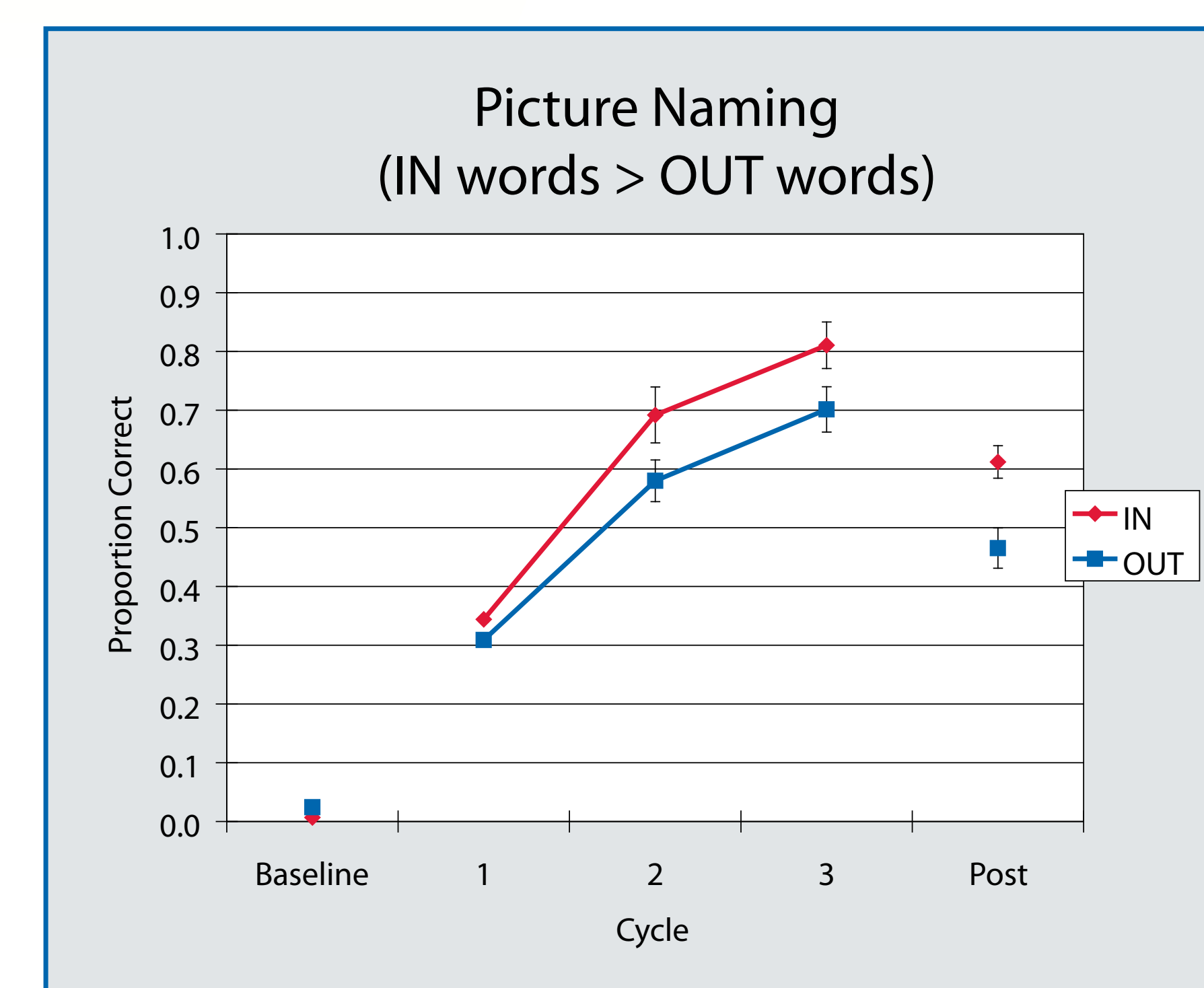
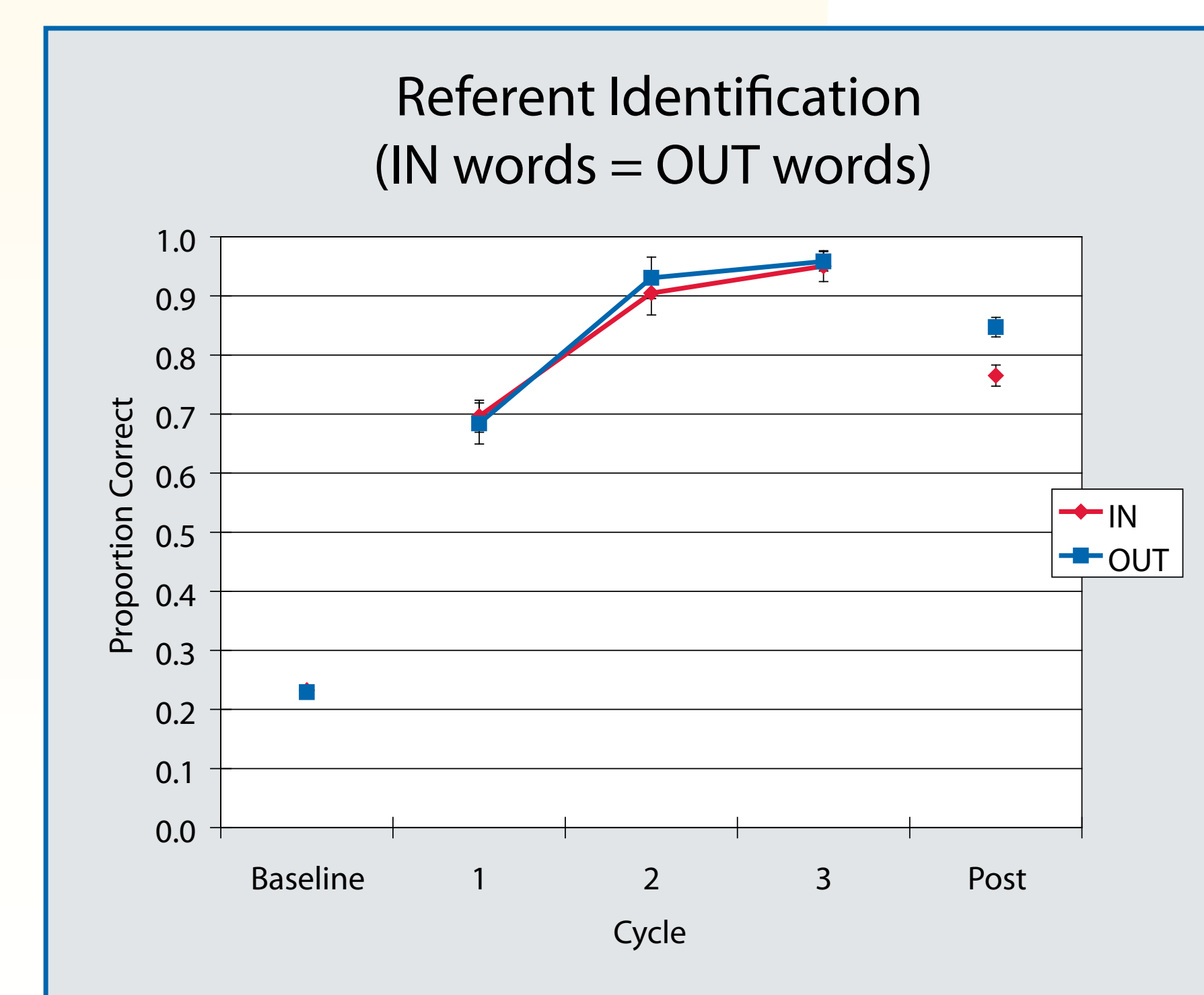
### Two measures to test word learning

- ◆ Referent Identification (picture choice)
  - Tests semantic representations
  - 4 pictures (target + 3 foils)
  - scored as correct or incorrect
- ◆ Picture Naming
  - Tests lexical representations
  - Correct if 3/3 phonemes are produced correctly
  - OUT words: mispronunciation accepted as correct if the participant's typical production pattern

## Cycles



## Results



## Conclusion

- ◆ Phonological knowledge influences L2 word learning.
  - IN > OUT only for picture naming
    - ◆ Affects lexical representations
    - ◆ Does not affect semantic representations
- ◆ L2 word learning similar to early-stage L1 in the effect of phonological knowledge

## Implications

L2-L1 phonological mapping can be extended to L2 word learning

Perceptual training can be used to improve L2 word learning

## Future/Ongoing Directions

Comparing data with native English speakers & Japanese speakers with different proficiency levels

## References

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