

## Introduction

- Bilingual lexical retrieval can be difficult due to competition from the other language and due to reduced frequency of use (Golan et al., 2005).
- Would brief exposure to the other language influence performance in the target language? [Increasing competition but keeping frequency of use the same]
- Previous studies show that brief exposure to the dominant language (L1) affects production in the non-dominant language (L2) (Kreiner & Degani, 2015).
- Two control processes were suggested for bilingual language control: (1) global – operating on the entire language system; and (2) specific – affecting particular items (Van Assche et al., 2013).
- Some words are typically said in another language (e.g., Arabic speakers using the Hebrew word MAZGAN instead of the Arabic word MUKAYEF). This can be viewed as **code switching** - a complete shift to another language, or **borrowing** – the foreign word is adapted into the first language (Grosjean, 1997).

## The current study

Would brief exposure to the L2 influence production in the L1?

Would brief exposure operate in an item-specific or global way?

Would all words (borrowed and regular) be influenced by brief exposure in the same way?

## Participants

48 Arabic-Hebrew bilinguals, all students.

**Experimental group (24)** exposed to Hebrew during the experiment.

**Control group (24)** not exposed to Hebrew during the experiment.

All participants performed the experiment in an Arabic speaking environment.

|                             | Control group   |                 |                | Experimental Group |                  |                 |
|-----------------------------|-----------------|-----------------|----------------|--------------------|------------------|-----------------|
|                             | Arabic L1       | Hebrew L2       | English L3     | Arabic L1          | Hebrew L2        | English L3      |
| Age                         | 22.68<br>(1.71) |                 |                | 22.21<br>(1.87)    |                  |                 |
|                             | M               | M               | M              | M                  | M                | M               |
|                             | (SD)            | (SD)            | (SD)           | (SD)               | (SD)             | (SD)            |
| Age began learning (years)  | -               | 7.72<br>(1.21)  | 8.28<br>(0.44) | Birth              | 8.5<br>(0.5)     | 8.95<br>(0.675) |
| Years of learning           | -               | 10.96<br>(1.64) | 9.83<br>(1.13) | -                  | 12<br>(2.08)     | 10.25<br>(1.58) |
| % Current Language Exposure | 62.08<br>(9.08) | 30.83<br>(7.85) | 7.17<br>(5.54) | 60.33<br>(16.4)    | 32.66<br>(14.64) | 6.92<br>(6.78)  |
| Language proficiency (0-10) | 9.96<br>(0.069) | 8.5<br>(0.42)   | 7.49<br>(0.82) | 9.65<br>(0.213)    | 8.71<br>(0.36)   | 5.79<br>(0.89)  |
| Reading proficiency (0-10)  | 10<br>(0)       | 9.6<br>(0.58)   | 7.56<br>(1.73) | 9.625<br>(0.69)    | 8.91<br>(1.52)   | 6.625<br>(1.97) |
| Language use (0-10)         | 6.48<br>(1.16)  | 6.04<br>(1.35)  | 4.57<br>(1.97) | 6.49<br>(1.17)     | 5.07<br>(2.13)   | 3.31<br>(1.48)  |

## Stimuli

- Two sets of 80 pictures
- Each set includes 40 pictures (**C= Control words**) that are typically named in Arabic and 40 pictures (**B= Borrowed words**) that are typically named in Hebrew by Arabic-Hebrew bilinguals.



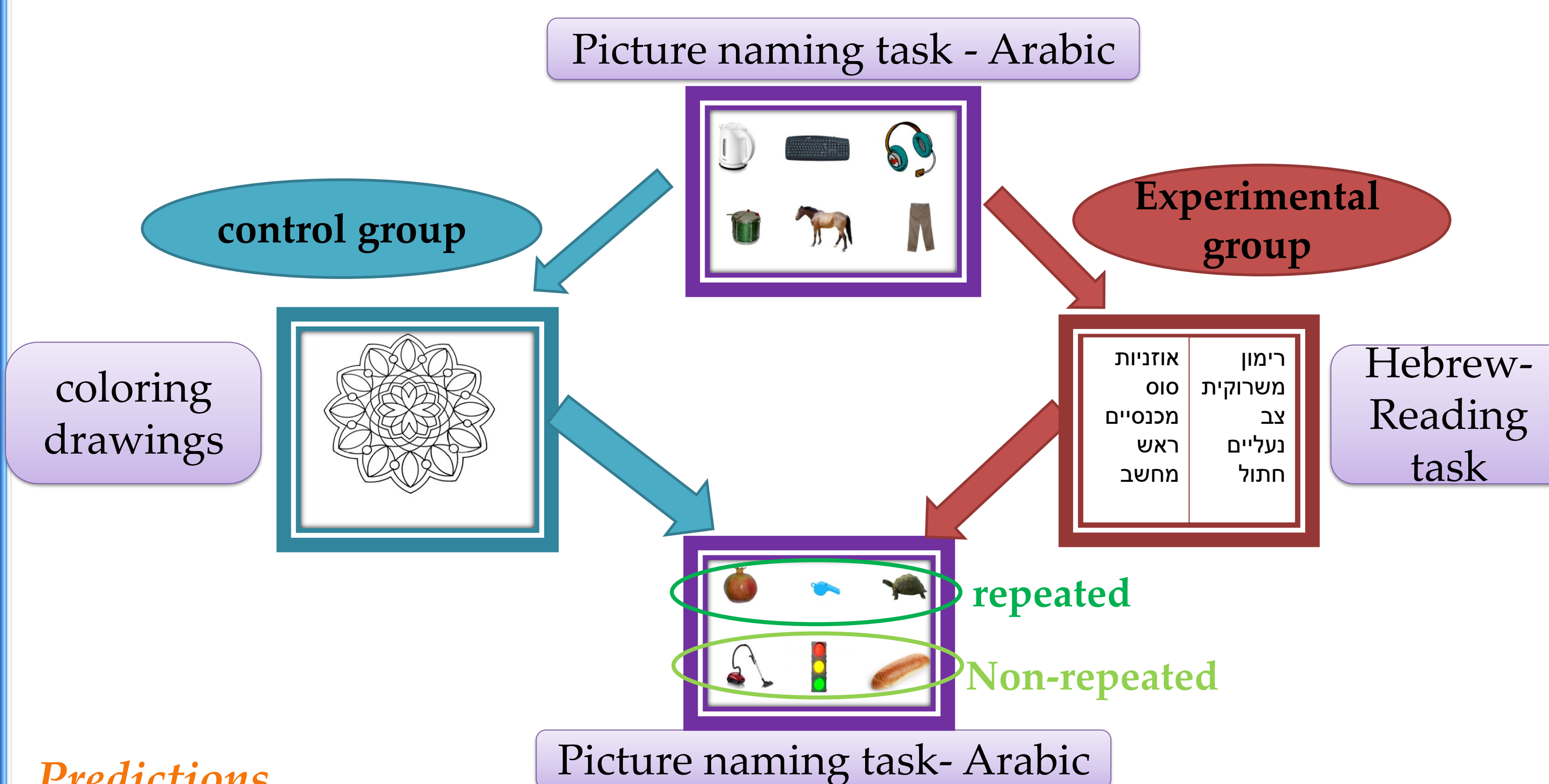
## Task & Procedure

**Before:** Arabic picture naming (Set 1 or 2, counterbalanced - 80 items).

**Brief exposure (2-3.5 minutes)**

- **Experimental group:** reading aloud a list of Hebrew words (80 word; 40 from set 1 & 40 from set 2).
- **Control group:** non-linguistic task (coloring drawings)

**After:** Arabic picture naming (Set 2 or 1, counterbalanced - 80 items).



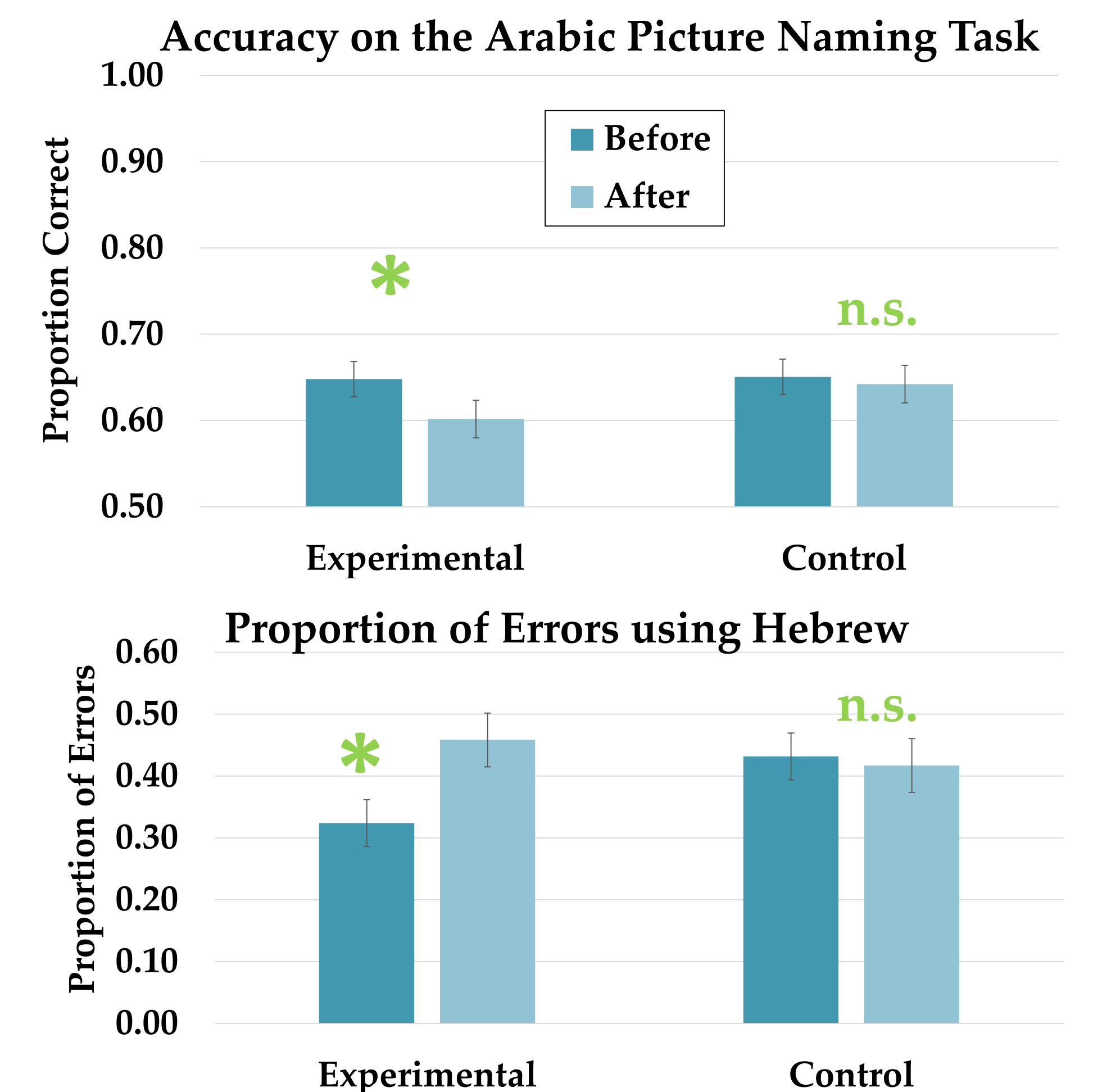
## Predictions

- Brief exposure to Hebrew would increase error rate in second naming task.
- Brief exposure to Hebrew would increase percentage of Hebrew errors.
- Repeated items would suffer more from brief exposure.
- Borrowed words will be more sensitive to the Hebrew exposure manipulation.

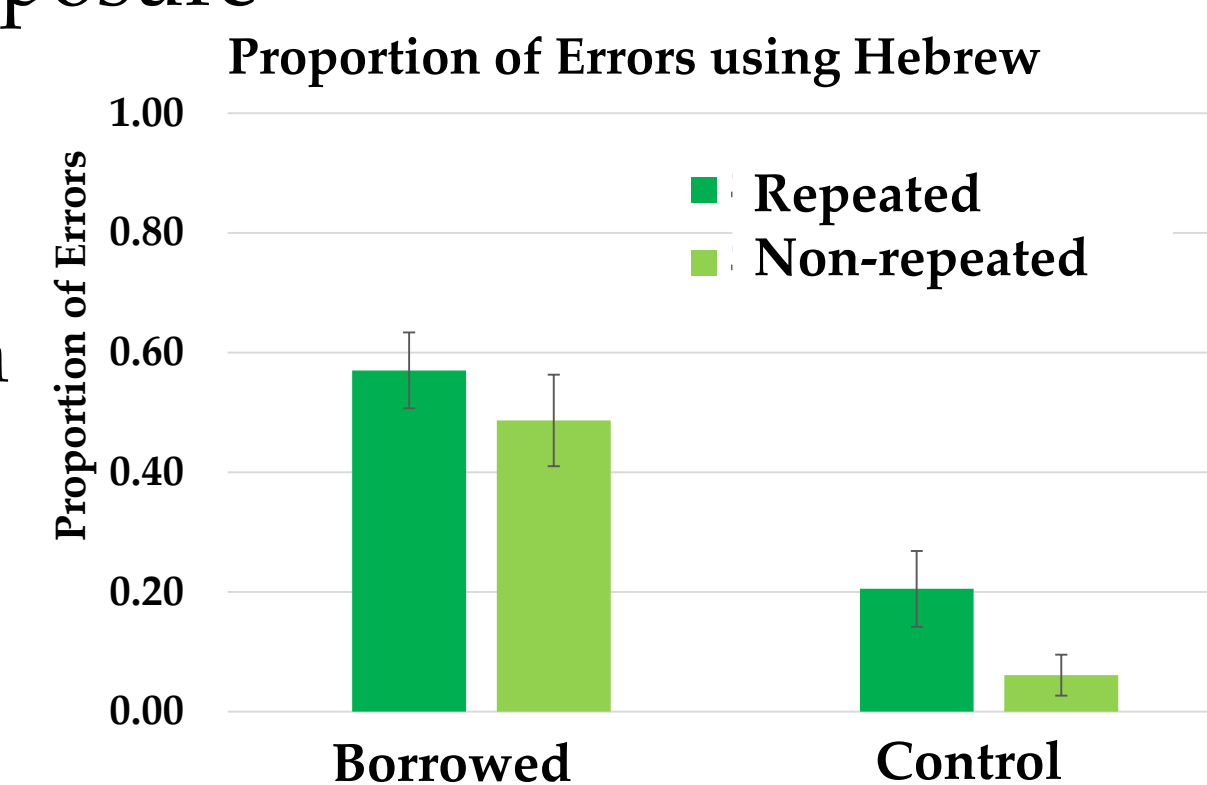
## References

- Gollan, T. H., Montoya, R. I., Fennema-Notestine, C., & Morris, S. K. (2005). Bilingualism affects picture naming but not picture classification. *Memory & Cognition*, 33(7), 1220-1234.
- Grosjean, F. (1997). Processing mixed language: Issues, findings, and models. *Tutorials in bilingualism: Psycholinguistic perspectives*, 225-254.
- Kreiner, H., & Degani, T. (2015). Tip-of-the-tongue in a second language: The effects of brief first-language exposure and long-term use. *Cognition*, 137, 106-114.
- Meuter, R. F., & Allport, A. (1999). Bilingual language-switching in naming: Asymmetrical costs of language selection. *Journal of memory and language*, 40(1), 25-40.
- Van Assche, E., Duyck, W., & Gollan, T. H. (2013). Whole-language and item-specific control in bilingual language production. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 39(6), 1781.

## Results



- Accuracy rates in Arabic decreased significantly after brief exposure to Hebrew (L2 reading aloud task).
- Errors were more likely to result from naming the pictures in Hebrew following brief L2 exposure
- No effect of item repetition. Both repeated and non-repeated items suffered from Hebrew exposure
- Borrowed words were as sensitive to brief exposure as control words



## Discussion & Conclusion

- L1 (Arabic) production lower following brief exposure to a production task in L2 (Hebrew)
  - Increased L2 competition due to increased L2 activation
  - Recovering from L1 inhibition during brief exposure (Meuter & Allport, 1999).
- Effect was global, not restricted to repeated items.
- Future directions will explore whether brief exposure in a comprehension task similarly affects performance.
- Implications for bilingual performance in real life situations (e.g., psychometric tests) where brief language exposure may hinder performance level.