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The representation of homophones in the phonological lexicon: Additional evidence from Hebrew

Biran M. a,*, Gvion A. b, Sharabi L. c, Gil M. c

a University of Haifa, Loewenstein Hospital Rehabilitation Center
b Ono Academic College, Reuth Medical Center
c Loewenstein Hospital Rehabilitation Center

Introduction

Lexical retrieval is a multi-level process, which consists of two main lexical levels: semantic – word meaning, and phonological – word form. One of the intriguing questions of lexical processing is how homophones are represented in the model. Homophone is a phonological word-form that is shared by more than one semantic meaning (e.g., palm: hand; tree). The different meanings have separate semantic representations, but the question is whether they have also separate phonological representations (Caramazza, 1997) or a shared phonological representation (Levelt et al., 1999). Biedermann and colleagues (2002, 2008a,b) explored this question, in German and in English, by conducting a treatment study for 3 individuals with aphasia. In their studies they treated one meaning of the homophonic word and examined the improvement for treated and untreated items. They found an improvement for treated items, with generalization to the untreated meaning of the homophone, but with no generalization to phonological and semantic related control words. These findings support a shared phonological representation. In the current study we examined the same question in Hebrew.

Method

Two Hebrew speaking individuals with aphasia following stroke: ZT, a 67 years-old man, 3 months post-onset, and ES, a 72 years-old man, 5 months post-onset. Both had naming impairment due to a phonological deficit, which was diagnosed by various tests administered to them, including: word and nonword reading and repetition, picture associations, word-picture matching and typical naming errors and effects on naming.

Pictures of 13 homographic homophonic word pairs (in their two meanings) and a phonologically related word matched to each homophone, all high imageability nouns (39 pictures in total). The 39 pictures were presented for naming, prior and post treatment. After pre-test, items for treatment were chosen for each participant individually according to his performance on the pre-test, and balanced for frequency and success of the participant in their naming. The treated items were 13 pictures of words – one of each homophone pair. The treatment consisted of five consecutive (day-by-day) 30 minutes sessions, in which the participant was asked to name the 13 pictures. If he failed, the experimenter gave him an increasing phonological cue until the correct word was produced. Then, the participant was asked to repeat the word correctly. Each picture was presented 8 times per session. After treatment, naming of all 39 items was tested again, to examine improvement – in

* Corresponding author.
E-mail address: birammi@gmail.com.
treated and untreated items (homophonic pair and phonologically related words).

**Results**

The two participants showed a significant improvement in naming of the treated homophones after treatment ($p < .05$). Importantly, generalization to naming of the untreated meaning of the homophones was also observed — there was a significant improvement in their naming as well. However, naming of the phonological related items did not improve.

**Discussion**

These findings replicate those of Biedermann and colleagues (2002, 2008a,b) and support the existence of shared phonological representations to separate semantic representations of homographic homophones. Clinically, the results indicate that treatment may improve naming, and that generalization to specific untreated items may also occur.

**References**


