

A hypothesis of strategic influence of words on categorical perception

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Introduction

According to the numerous empirical research words can facilitate category learning and can effect on other non-verbal cognitive processes. Despite these facts there is no agreement in theoretical models of these effects.

G. Lupyan suggested a label-feedback hypothesis on the basis of A. Clark (1998) theory of language as augmentation (Clark, 1998). According to Lupyan assumptions language makes the visual representation more categorical (Lupyan, 2012). In other words verbal labels accompanied the actions performing with objects augment those objects' perception in a large amount of non-verbal tasks. Such augmentation leads to acceleration of the stimulus perceptual processing.

Are the word labels help in the perception of different features to collecting categorical information? We know (Jones, et al., 1991) that children are easier to remember names of objects on the basis of global features (shape) than local (part). And patients with aphasia selectively impaired on low-dimensional categorization, but not on high-dimensional categorization (Lupyan, & Mirman, 2012).

In our experiment, we examined whether the verbal labels lead to different ways to collect categorical information about categories with local and global feature distinction.

Method

84 adult subjects

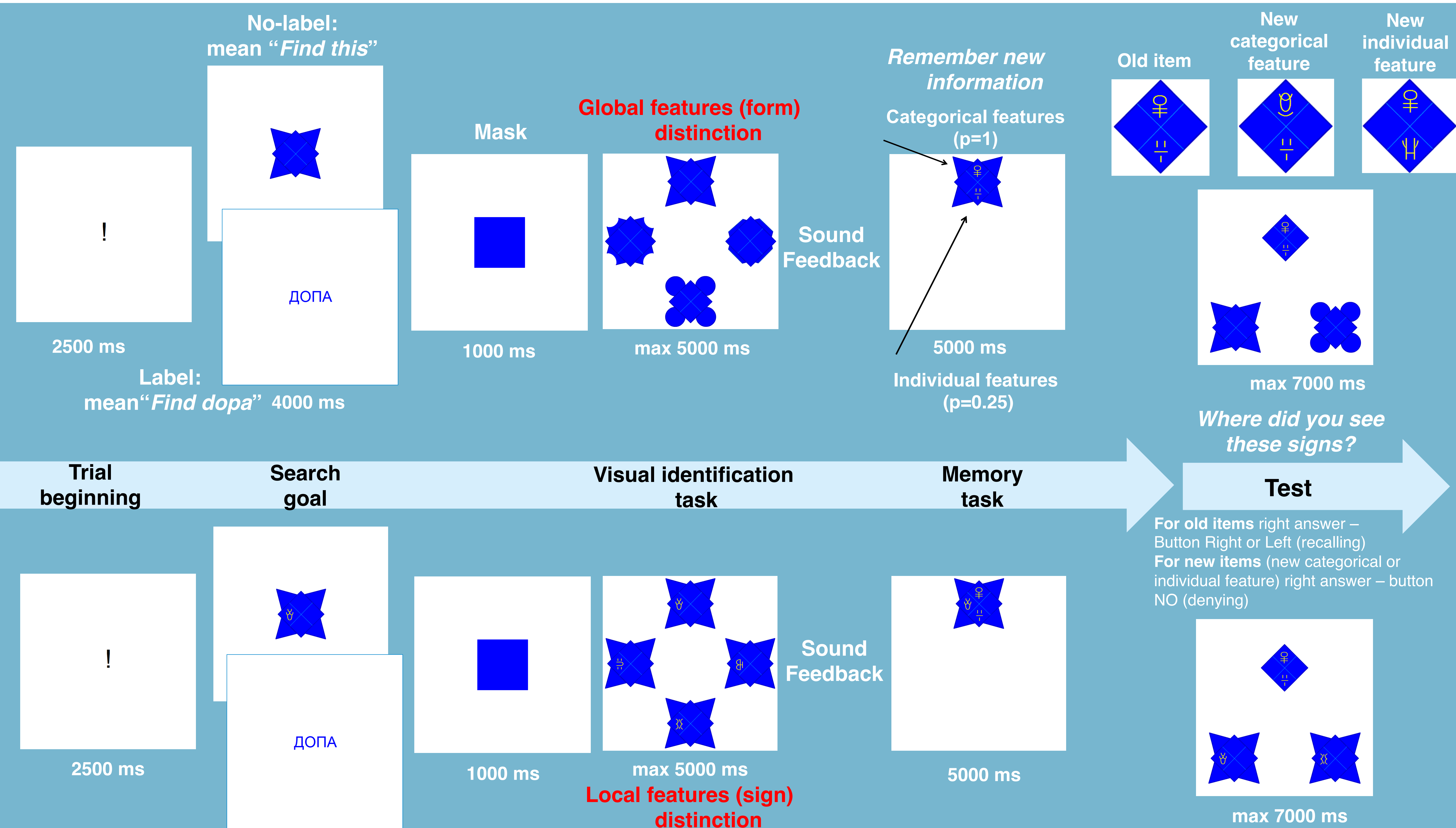
Experimental conditions:

- Label \ No-label
- Global \ Local feature distinction

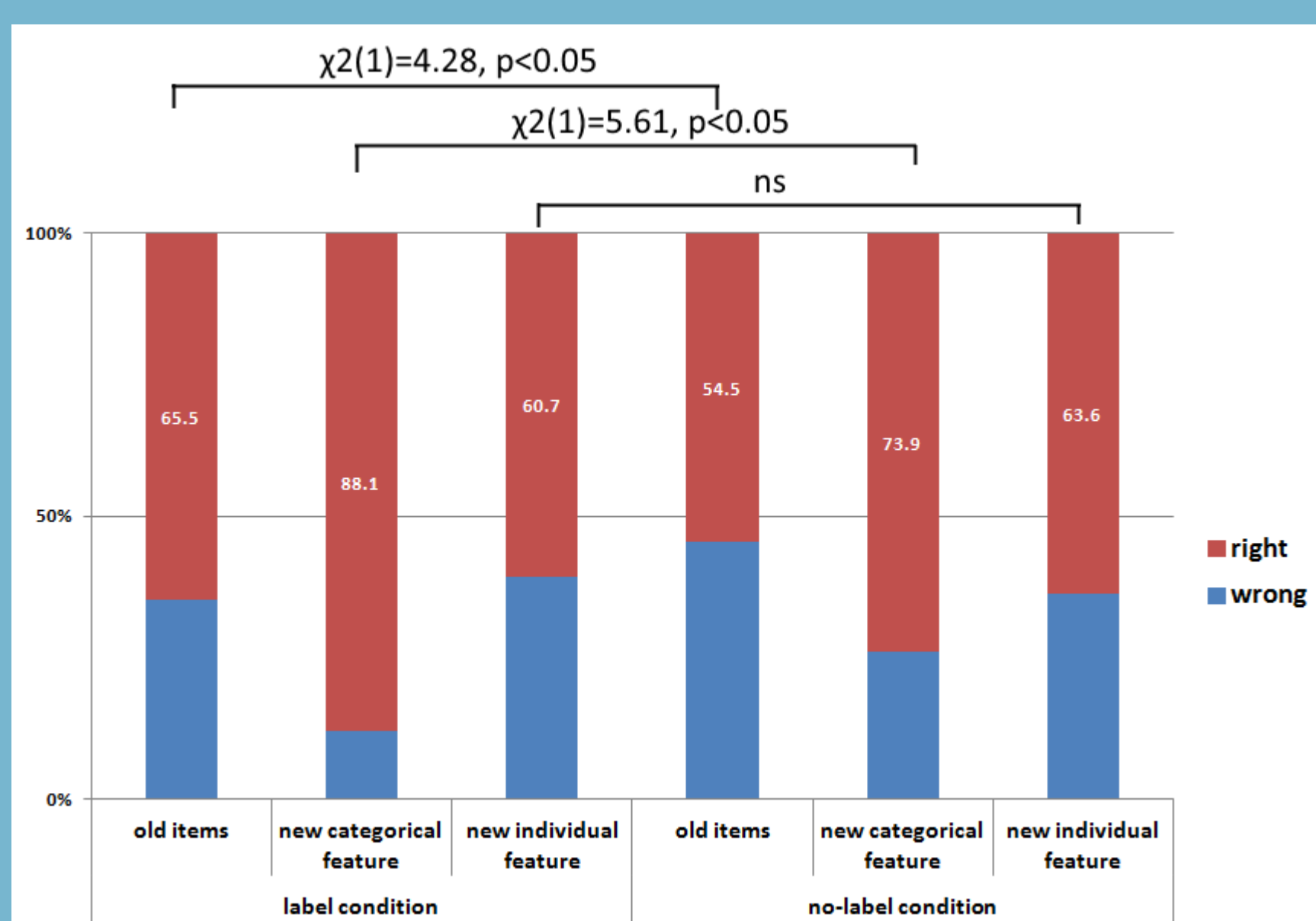
2x2 Between-subject design

Training – 16 trials

Test – 8 items

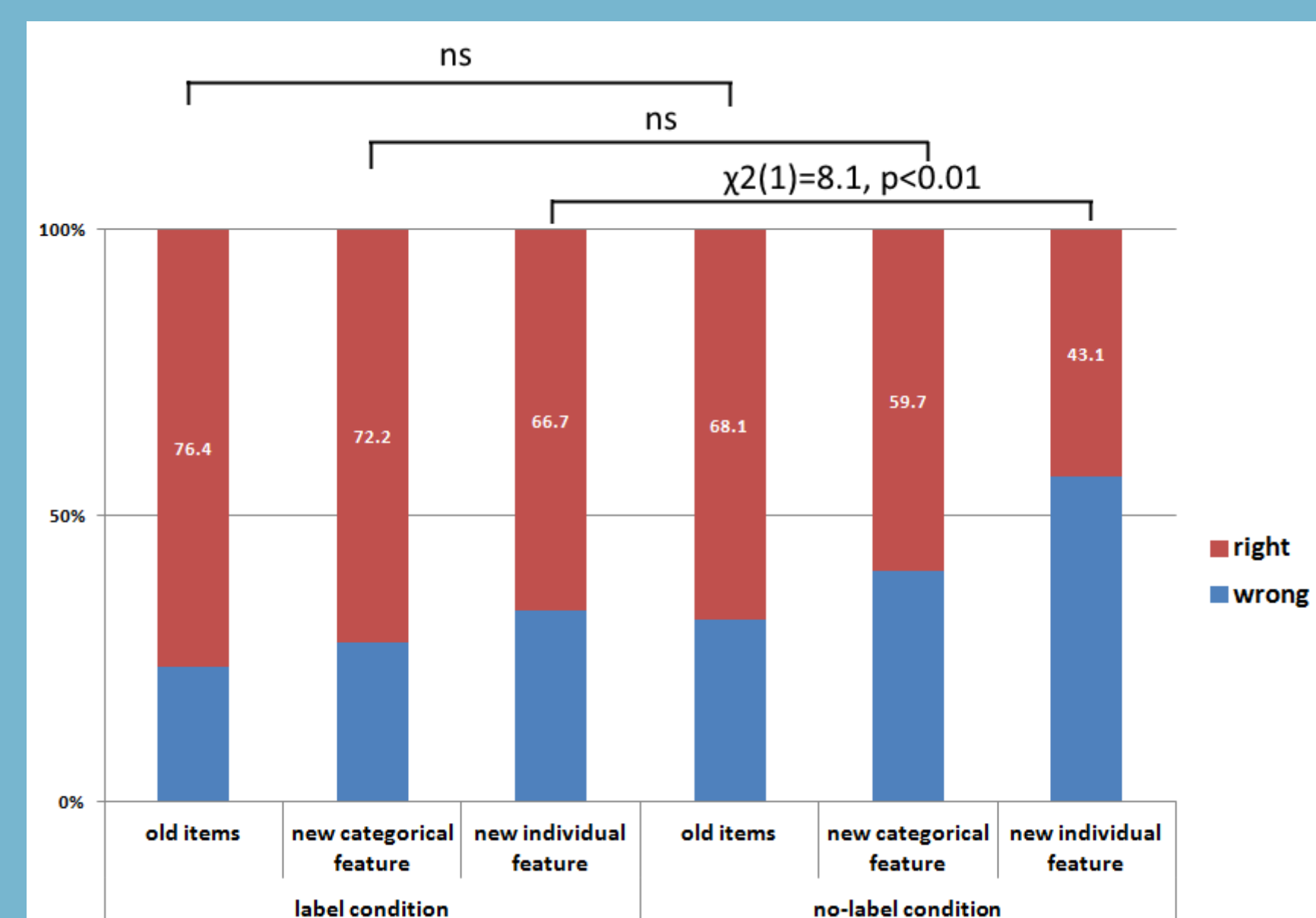


Results Global features distinction



Under the label-condition subjects recalling old items and recognized (denied) items with new-categorical feature better than under no-label condition.

Local features distinction



Under the label-condition subjects recognized only items with new-individual feature better than under no-label condition.

Discussion

These results prove that the effect of language on category learning can be different in the context of global and local features distinction between categories.

Such effect can not be fully explained by the label-feedback hypothesis (Lupyan, 2012; Clark, 1998)

We suppose that the word presence changes not the structural properties of the working memory or perception but strategic characteristics of collecting and highlighting the relevant information.

- In case of global feature framework labels lead to concentration only on frequent features (because it's more typical situation)
- In case of local feature framework labels distribute part of attention also on less frequent features (because it's atypical situation)

References

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