Idiom Processing in the Right and Left Cerebral Hemispheres

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Currently, it is unclear about the specific roles of the left and right cerebral hemispheres during language processing. Research has shown that the right hemisphere may be important during the processing of figurative language (e.g., Shami & Stuss, 1999). Specifically, research shows the left hemisphere may have an advantage when readers process highly familiar metaphors, whereas the right hemisphere may have an advantage when readers process unfamiliar metaphors (Faust & Mashal, 2007; Mashal, Faust, & Hendler, 2005). However, it is currently unclear how the left and right hemispheres process familiar and less familiar idioms. Based on previous research, the left hemisphere should have an advantage for high familiarity idioms, whereas the right hemisphere should have an advantage for low familiarity idioms. Therefore, in the current divided visual field study we investigated the hemispheric processing of idioms that vary on the level of familiarity. Participants read 48 sets of text. Each text contained either a high familiarity idiom (e.g., *to kick the bucket*), a low familiarity idiom (e.g., *to have a lark*) or a neutral condition that did not contain an idiom. After participants read each text, related target words or nonwords were presented to either the left visual field-right hemisphere or the right visual field-left hemisphere. Participants indicated whether the target was a word or a nonword (i.e., a lexical decision task). Facilitation scores were calculated by subtracting participant's response time for target words in the neutral condition from their response time for target words in the high and low familiarity idiom conditions. Facilitation was found to be greater in the left hemisphere than in the right hemisphere for both the high and low familiarity

idioms. The results from this study suggest that the left hemisphere may have an advantage when readers process both familiar and less familiar idioms.

References

Faust, M., & Mashal, N. (2007). The role of the right cerebral hemisphere in processing novel metaphoric expressions taken from poetry: A divided visual field study. *Neuropsychologia, 45,* 860-870.

Mashal, N., Faust, M., & Hendler, T. (2005). The role of the right hemisphere in processing nonsalient metaphorical meanings: Application of principal components analysis to fMRI data. *Neuropsychologia, 43,* 2084-2100.

Shami, P., & Stuss, D.T. (1999). Humor appreciation: A role of the right frontal lobe. *Brain, 122,* 657-666.