

ZMATH 2016c.00593

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Across-notation automatic numerical processing.

J. Exp. Psychol.: Learn. Mem. Cogn. 34, No. 2, 430-437 (2008).

Summary: In this article, the authors explored the existence of across-notation automatic numerical processing using size comparison and same-different paradigms. Participants were Arabic speakers, who used 2 sets of numerical symbols – Arabic and Indian. They were presented with number pairs in the same notation (Arabic or Indian) or in different ones (Arabic and Indian). In the size comparison paradigm, 2 digits differing both numerically and physically were compared on the physical dimension. Nevertheless, there was evidence that participants automatically processed the irrelevant numerical dimension in different notation pairs. In the same-different paradigm, 2 digits were presented either in the same or in different notations. Participants had to indicate whether the 2 digits were physically the same. The results again showed evidence for the automatic processing of numerical magnitude for pairs in different notations. Findings of both experiments suggest that numbers in different notations are automatically translated into a common representation of magnitude, in line with M. McCloskey's abstract representation model.

Classification: F20 F30 C30

Keywords: numerical processing; numerical symbols