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How do the hierarchical levels of premises affect category-based induction: Diverging effects from the P300 and N400

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Although a number of studies have explored the time course of category-based induction, little is known about how the hierarchical levels (superordinate, basic, subordinate) of premises affect category-based induction. The EEG data were recorded when nineteen healthy human participants were performing a simplified category-based induction task. The ERP results showed that: in the subordinate conclusion condition, the basic premise elicited a larger N400, versus the superordinate premise; in the basic conclusion condition, the superordinate premise elicited a larger P300 relative to both the basic premise and subordinate premise; in the superordinate conclusion condition, however, no difference was found between different premises. Furthermore, the process that reasoning from a higher level to a lower level evoked a larger P300, compared to it did in the reverse direction. The divergent evidence suggested that category-based induction at superordinate, basic, and subordinate levels might be affected by various factors, such as abstract level, direction, and distance between premise and conclusion, which yielded new insights into the neural underpinnings of category-based induction with different inductive strengths.

Biography

Yi Lei is an Associate Professor of Department of Psychology and Sociology at Shenzhen University, received her PhD from Southwest University of Developmental and Educational Psychology (2007). Her main researches explore the interaction between semantic relationship and emotion. So far, she has published 31 papers in international SCI/SSCI journals such as Neuropsychologia, Biological Psychology, Neuroimage, Scientific Reports, Experimental Brain Research, International Journal of Psychophysiology, as well as national core journals such as Acta Psychologica Sinica, Psychological Development and Education, Advances in Psychological Science, Psychological Science. She also won the Excellent Doctor Degree and Excellent Doctorial Dissertation Awards of Southwest.

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