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综 述

抽象概念语义表征的认知神经基础研究

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摘 要

关键词
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The cognitive and neural bases of abstract concepts

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Abstract: Words denoting abstract concepts constitute nearly half of human lexicon and serve as building blocks of the human culture. Since the advent of non-invasive neuroimaging techniques, great progress has been made in revealing the neurobiological foundation of concrete object and action concepts, yet it remains unclear how abstract concepts are stored and processed in the brain. Here we review recent development in this field, focusing on both theoretical perspectives and neuroimaging findings. We found that abstract concepts can be represented via linguistic and experiential information; the neural correlates of abstract concepts are partly in line with such a theoretical framework. Future studies are warranted to uncover the cognitive and neural mechanisms of language and experience in abstract word representation, which will help to deepen our understanding of general computational principles of the human conceptual system and to promote the development of the brain-like artificial intelligence.

Key words: abstract concepts; neuroimaging; language; embodied cognition

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[1] [3]

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1 抽象概念表征的认知理论简述

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(concreteness advantage effect)

[14]

(reverse concreteness advantage effect)

[15–21]

[22, 23]

(dual coding) (context availability)

(differential representational framework) /

(embodied cognition)

1.1 双重编码理论

[24, 25]

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1.2 语境有效性理论

Schwanenfugel [30]
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Schwanenfugel
[30, 31]

[30]
Hoffman

[32]

[33] Schwanenfugel
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[25] /
[5, 34]

1.3

Binder [48]

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[47, 48]

1.4.1 社会和思维信息

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1.4.2 情

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2 抽象概念加工的神经基础研究进展

2.1 抽象概念的

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2.2.1 社会信息

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(nutritious)

(honor)

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[83]

[87]

2.2.2 情绪信息

Vigliocco (

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(rostral anterior cingulate cortex, rACC)

[50]

rACC

3 总结与展望

“ ” “ ”

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[60, 97, 98]

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