



# Is embodiment necessary for natural language understanding?

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High-level brain functions involve thinking, reasoning, planning and language, all based on the use of symbols. How are these symbols represented in the brain, and how to model brain processes to reach high level of linguistic competence? A unified neurocognitive view of understanding the meaning of symbols may be based on spreading neural activation in the brain. This process is approximated by spreading activation in brain networks, providing enhanced representations that involve concepts that are not found directly in the text. Approximation of this process is of great practical and theoretical interest.

Although activations of neural circuits involved in representation of words rapidly change in time snapshots of these activations spreading through associative networks may be captured in a semantic network or in a vector model. It remains to be seen how far can one go using such approximations without embodiment. Perspectives on computational approach to creativity and higher cognitive functions will be outlined.

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