Typicality gradients in the category fluency task

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Abstract

In the category fluency task, participants are given a superordinate category (e.g., ANIMALS) and generate exemplars (e.g., dog, cat, lion, tiger, monkey, ...). Cognitive neuropsychologists have shown that people with frontal lobe lesions are less flexible in switching between categories (e.g., Pets, Felines, Jungle Animals). Recently, cognitive scientists have developed formal models of the switching process. Our research builds a second bridge between the cognitive neuropsychology and cognitive science literatures. We utilize machine learning models of word meaning (GloVe, word2vec) to investigate typicality gradients of category exemplars over time. Within a category run, people produce more typical exemplars earlier, and across runs, they sample more frequent categories before less frequent categories. We also propose a novel ANIMALS category scheme that improves the classic one (Troyer et al., 1997). These findings expose the temporal structure of the category fluency task, and are relevant for theories of cognitive flexibility and cognitive control.

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