Introduction

The angular gyrus (AG) has been found to respond to a number of different tasks involving combinatorial processing over and above lexical processing. For instance, meaningful noun compounds like "lake house" have been found to elicit greater activity in the angular gyrus (AG) than when their constituents are reversed ("house lake") and less compositional (Graves et al., 2010). In other studies, AG has been implicated in tracking verb argument structure and than when their constituents are reversed ("house lake") and less compositional (Graves et al., 2010). In other studies, AG has been implicated in tracking verb argument structure and thematic relations between concepts (Binder et al., 2009; Schwartz et al., 2011, Thompson et al., 2010). In other studies, AG has been implicated in tracking verb argument structure and thematic relations between concepts (Binder et al., 2009; Schwartz et al., 2011, Thompson et al., 2010). In other studies, AG has been implicated in tracking verb argument structure and thematic relations between concepts (Binder et al., 2009; Schwartz et al., 2011, Thompson et al., 2010).

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Subjects: 11 subjects (5 male) recruited from the University of Pennsylvania, all right-handed native speakers of English.

Attributive Combination

Examples: “Robin Hawk”
- Concepts are a constellation of features/attributes, which can be re-combined
- Example: “canary crayon”
- Concept is atomic (not broken down into features) and act relative to some implicit predicate
- Items are arguments in a thematic relation: e.g. "preys on (haw, robin)"

Relational Combination

- Concepts are atomic (not broken down into features) and act relative to some implicit predicate
- Example: “floor television”
- Concept is a constellation of features/attributes, which can be re-combined
- Concept is a constellation of features/attributes, which can be re-combined

Fixation > Task clusters + ROI outlines

Discussion

We compared univariate measures of activity in left anterior temporal lobe and bilateral angular gyrus in response to two different kinds of noun-noun composition: attributive, where properties/features of the modifier noun are applied to the head noun, and relational, where a thematic relation is imposed between the modifier and head nouns. We find evidence that both right and left angular gyrus differentially engage in attributive and relational interpretation of noun compounds. These findings add to a growing literature implicating bilateral AG in conceptual combination. It also suggests that future study of the neural bases of combinatorial language would benefit from a distinction between attributive and relational operations.

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References

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