Gradient structure in verb-particle combinations
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How are language categories represented in the mind?
Two syntactic analyses of verb-particle combinations (VPCs)

- One-unit items: Make up
  - VPC parts not separable in sentence
  - Meaning not composed from parts
  - make up the story vs. /make the story up
  - One structural unit

- Two-unit items: Eat up
  - VPC parts can separate
  - Meaning composed from parts
  - eat up all the cake vs. eat all the cake up
  - Two structural units

- Syntactic structure suggests two discrete representations (see Wurmbrand, 2000)
- But meaning seems to be graded
- Intermediate items: Look up
  - look up the answer vs. look the answer up
  - look up? = look + up
- Variation in compositionality suggests one graded dimension (Gonnerman et al., 2005; Lohse et al., 2004)
- Use illusory conjunction paradigm to examine structure of mental representation:
  - Does compositionality lead to particle errors? (Experiment 1)
  - Do errors suggest one graded dimension or two discrete clusters? (Experiment 2)

Experiment 1
Are VPCs susceptible to particle migrations?

- Particle ‘migration’ from illusory conjunction
  - Odds particle absent belief
  - Dichotomized Compositionality
  - Low: Make up
  - High: Eat up
  - Intermediate: Look up
  - ...when actually present
  - ...when actually absent

- High VPC compositionality predicts closer odds of particle present & absent
- Illusory conjunctions modulated by structural separability

Experiment 2
Do VPC errors support distinct categories?

- Particle ‘migration’ from illusory conjunction
  - Odds particle absent belief
  - Gradient Compositionality
  - Discrete Compositionality

- Gradient effect on odds of belief
- Model fit (BIC) better for no-break model
- In one-break model, overall slope same as no-break model; adjustment is NS

- Speed and accuracy
  - Index number of candidate answers: How good are the options?
  - One good answer = Fast & accurate
  - Two bad answers = Fast & inaccurate
  - Two good answers = Fast & ‘inaccurate’
  - Speed-accuracy tradeoff

Illusory conjunction paradigm

Responses provide information about particle belief

- Eat or Eat up? Burn or Burn up?

Linguistic structure can be gradient
Verb-particle combinations are susceptible to illusory conjunction
- Follows particle separability
- VPCs are represented by two structures...but form one category
- Both analyses available for some items
- Syntactic structure is probabilistic
- Language categories operate like other categories in cognition
- Importance of graded properties; family resemblances

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References

\[ \text{ParticleAbsent} \]