Cognition and neurolinguistics
Cognition

• Ability to processing information
  – attention
  – memory
  – learning
  – language understanding
  – language production
  – problem solving
  – reasoning
  – decision making

• Beyond (but integrated with) perception
Tools: attention

• Split-attention experiments (e.g. Stroop)
• Executive control in bilinguals
Tools: memory

- Working memory test
- Lexical decision tasks
- Verbal learning tests (CVLT, RAVLT, RBANS)
Tools: learning

• Educational assessment
• Lots of tools, measures, metrics, etc.
• IP&T
Tools: language understanding

• Vocabulary levels
• Grammar knowledge
• Reading comprehension
• Spoken language comprehension
Tools: language production

• Oral proficiency interviews
• Elicited imitation tests
• Simulated OPI’s
• Speech recognition tools
Tools: problem solving

• Standardized tests: GRE, etc.
• Placement tests in industry
Tools: reasoning & decision making

- Placement tests
- Online training
- Diagnostics
Cognitive modeling

• Computer systems designed specifically to solve problems like humans do (not like computers)
• Usually agent-based (self, environment, others, perception, decisions, learning, memory, etc.)
• Used to model individual tasks and task interference
• Modeling language (lexical access, parsing, semantics, pragmatics, etc.)
Neurolinguistics tools

- Skin measurements
- Eye tracking
- Brain scans (EEG, MEG, PET, CAT, fMRI)

The pizza was too hot to

<table>
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<th>Voltage</th>
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Differential Activity
animals vs vehicles

- 7 frontal
- 3 central
- 4 parietal
- 5 occipital

Unrelated > Related
Thought identification

- https://www.youtube.com/watch?v=Cwda7YWK0WQ