Working Memory Capacity Relationships with Perceptual and Semantic Go/No-go Tasks

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Introduction
- What factors influence performance?
- WMC?
- Trial type?
- Trial type frequency?
- Task specifications?

Current Questions
- What types of task manipulations alter performance on a go/no-go task?
- Do those manipulations differentially affect levels of WMC?

Method
- Purdue students
- E1 N = 106 (56 Upper/50 Lower)
- E2 N = 101
- E3 N = 102

Operation & Symmetry Span Tasks

Go/No-go Tasks
1A: Upper/Lower case (Perceptual)
1B: Non-Living (Semantic)
   DOCTOR
   giraffe
   ambulance

2A: Non-3 (Perceptual) 7 1 3
2B: Non-X (Perceptual) X R T

3A: Living (Semantic)
   DOCTOR
   SCHOOL
   giraffe
   ambulance

3B: Only 3 (Perceptual) 7 1 3

Results

Results Summary
- Within subjects
  - Perceptual faster than semantic (E1, E3)
  - No-go accuracy higher in perceptual than semantic (E1, E3)
- Between subjects
  - Uppercase vs. Lowercase:
    - Higher no-go accuracy in uppercase version than lower case
    - Order effect in RTs
  - Non-3 vs. Only 3:
    - d’ not different
  - Non-Living vs. Living:
    - Non-living faster than living
    - Similar RT distributions
    - d’ greater in non-living
- Correlations
  - Performance on all tasks related to WMC

Conclusion
- Decision type (semantic vs perceptual) affects task performance, indicating there is something distinct in the processing of these different task versions
- The same stimuli can result in performance differences based on which stimulus is designated the ‘go’ stimulus indicating participants may be keeping different goals in mind

Please contact ewiemers@purdue.edu or visit http://web.ics.purdue.edu/~tredick for more information on this and related projects, including download access.