

# Age Differences in Stimulability of Sentence Structures: Implications for Treatment

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## ABSTRACT

Syntactic priming is an experimental paradigm that has been shown to increase the production of low frequency sentence structures (e.g., passives & datives) in normal speakers. In this study, 30 young and older adults repeated sentences with a target structure, then generated a sentence describing a picture showing a similar action (e.g., transitive, dative, or complex). Young adults showed successful priming of passives and different types of datives. Older adults produced many fewer passives and many more prepositional passives than young adults. Neither group showed priming for complex sentences. These results suggest that different age groups are differently stimulable for different sentence structures. Moreover, they suggest that sentences with surface structures similar to the target structures may be equally good at priming low frequency structures as the target structure itself, thus adding variety to the training set.

## METHODS

### Participants

- 30 healthy young adults (YA, ages 18-30) from the University of Florida
- 30 older adults (OA, ages 60-90) with no neurological disorders.

### Procedure

- Pictures from Bock & Loebell (1990) were scanned into a computer and interspersed with screens showing the sentence, "Listen and repeat."
- In each trial, participants either heard and repeated a sentence or described a picture using a single sentence.
- Auditory stimuli were read aloud by the experimenter when cued by the computer.
- Immediately after repeating a priming sentence, participants described a target picture.
- 10 filler trials intervened between critical trials of each type.

### Materials

**Passives.** Included 18 sets of priming sentences paired with 18 pictures of transitive events (*kissing, hitting, destroying*).

- Priming sentences comprised 3 types:
  - Active Sentences: *The worker drove the bulldozer.*
  - Passive Sentences: *The bulldozer was driven by the worker.*
  - Locative Sentences: *The worker was digging near the bulldozer.*

Dependent variable: Proportion of transitive sentences produced as full passives (must include form of *be* + agentive 'by'-phrase)

**Datives.** Included 18 sets of priming sentences paired with 18 pictures of dative events (e.g., *giving, selling, showing*).

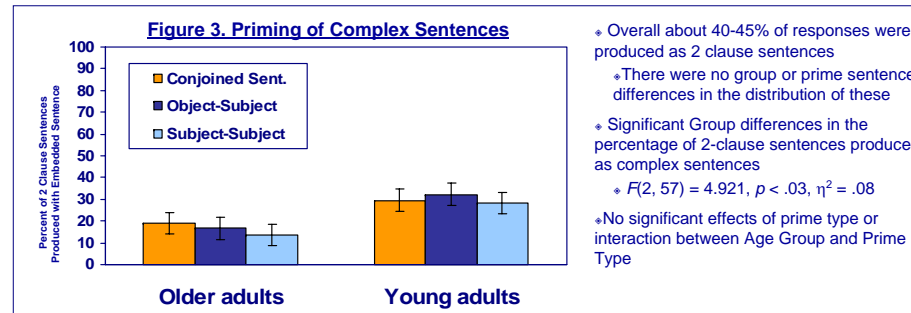
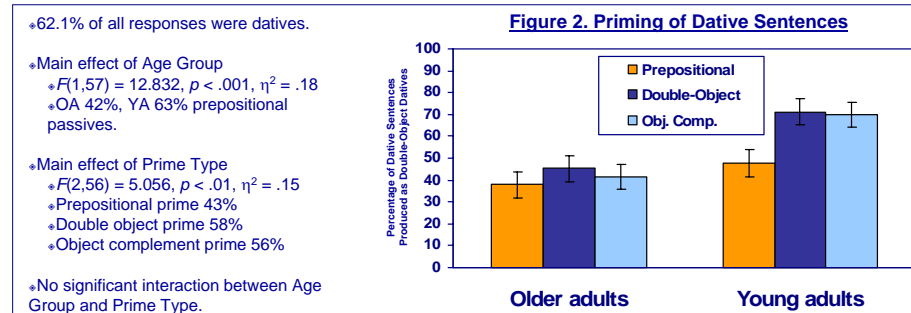
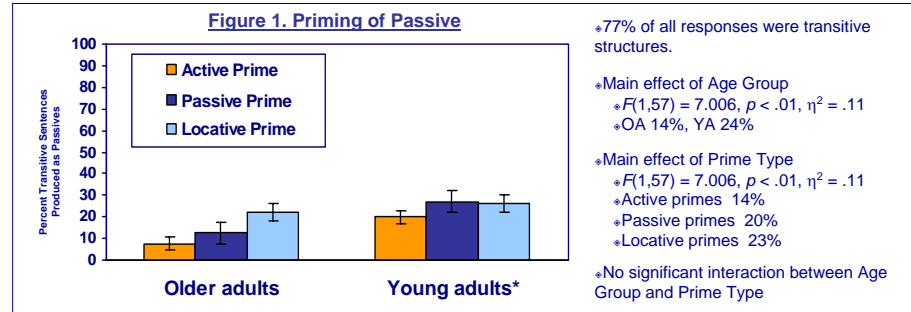
- Priming sentences were of 3 types:
  - Prepositional Datives: *Susan brought a book to the student.*
  - Double Object Datives: *Susan brought the student a book.*
  - Object complements: *The city elected Susan mayor.*

Dependent variable: Proportion of datives produced as double-object datives.

**Complex.** Included 18 sets of priming sentences paired with 18 pictures of events that could be explained with a complex sentence or conjoined sentence.

- Priming sentences were of 3 types:
  - Conjoined: *The man wore white pants and they had stains on the knee.*
  - Object-Subject: *The man wore white pants [that had stains on the knee].*
  - Subject-Subject: *The man [that wore white pants] had stains on his knee.*
- Dependent variable: Proportion of two clause sentences produced that contained a relative clause.

## RESULTS



## CONCLUSIONS

This study adds to the literature on syntactic priming in several ways.

- We replicate findings that syntactic priming is a relatively robust phenomenon for the elicitation of prepositional datives and passives.
- We replicate and extend findings that syntactic structures prime at a level of language representation distinct from thematic roles.
- We replicate a finding that is occasionally reported: that priming of passives is much reduced compared to dative priming.
- We investigate the possibility of using syntactic priming to elicit complex sentences.
- We investigate syntactic priming as a method to elicit various sentence structures in OA.

### Primary findings

- Pervasive age differences in the baseline production of all three types of sentence structures.
- No significant difference in the response to syntactic primes across age groups.
- Similar or enhanced priming from syntactic structures that share only surface structure with the target.
- Lack of priming for complex sentences in both age groups.

### Implications for treatment

- Syntactic priming may be a useful adjunct to more traditional sentence production treatments.
- Including sentences that have different thematic structures but similar surface structure in treatment may actually increase the production of infrequent sentence structures.
  - This may make training sets more interesting and varied.
  - This may increase generalization of training.
- The relative efficacy of syntactic priming may vary depending on the age of the client
  - Passive sentences may be easier to elicit from YA than OA.
  - Double object datives may be easier to elicit from YA than prepositional datives.
  - Prepositional datives may be easier to elicit from OA than double object datives.
  - Older adults seem to benefit most from the use of alternative surface structure primes.
- Complex sentences with embedded relative clauses may not be stimulative using this method.
  - Production of complex sentences requires the simultaneous activation of both clause concepts
  - Differences in working memory may limit the ability to produce complex sentences.

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