

# Speed of sentence processing in older adults: A strategic slowing?

Svetlana Malyutina <sup>1</sup>, Anna Laurinavichyute <sup>1,2</sup>,  
Yevgeniy Lapin <sup>1</sup>, Maria Myslina <sup>1</sup>

<sup>1</sup> National Research University Higher School of Economics, Russian Federation;  
<sup>2</sup> University of Potsdam, Germany

## Background

Previous research: older adults' slower processing may be a strategy to avoid potential error (based on evidence from non-linguistic tasks).

Goal: to test whether the strategic-slowing hypothesis also holds for linguistic processing, which has not been done before (the only exception — Brebion, 2001).

## Method

### Participants

Two age groups:  
**18-30** & **60+**  
years old younger adults years old older adults

Younger adults (now: n = 15 collected, 24 planned)  
Older adults (now: n = 23 collected, 24 planned)

- Native Russian speakers
- Without neurological and psychiatric disorders
- Without reading/speech impairment

### Design

**task:**  
sentence comprehension

- Word by word sentence representation
- A content question after each sentence (two response options selected by button press)
- Participants were not informed about the hypothesis



### Word by word sentence representation

### Stimuli information:

- 3 sets of 100 sentences
- Each set was randomized in 5 different ways
- Different sets of stimuli across the 3 sessions of each participant
- Types of sentences:
  - Sentences with a participial clause
  - Reflexive sentences
  - Sentences with a relative clause
  - Sentences with object-verb-subject word order
  - Simple sentences

**day 1:**  
self-paced reading

**day 2:**  
rapid serial visual presentation

**part A:**  
words presented at the median speed of self-paced reading ('average')

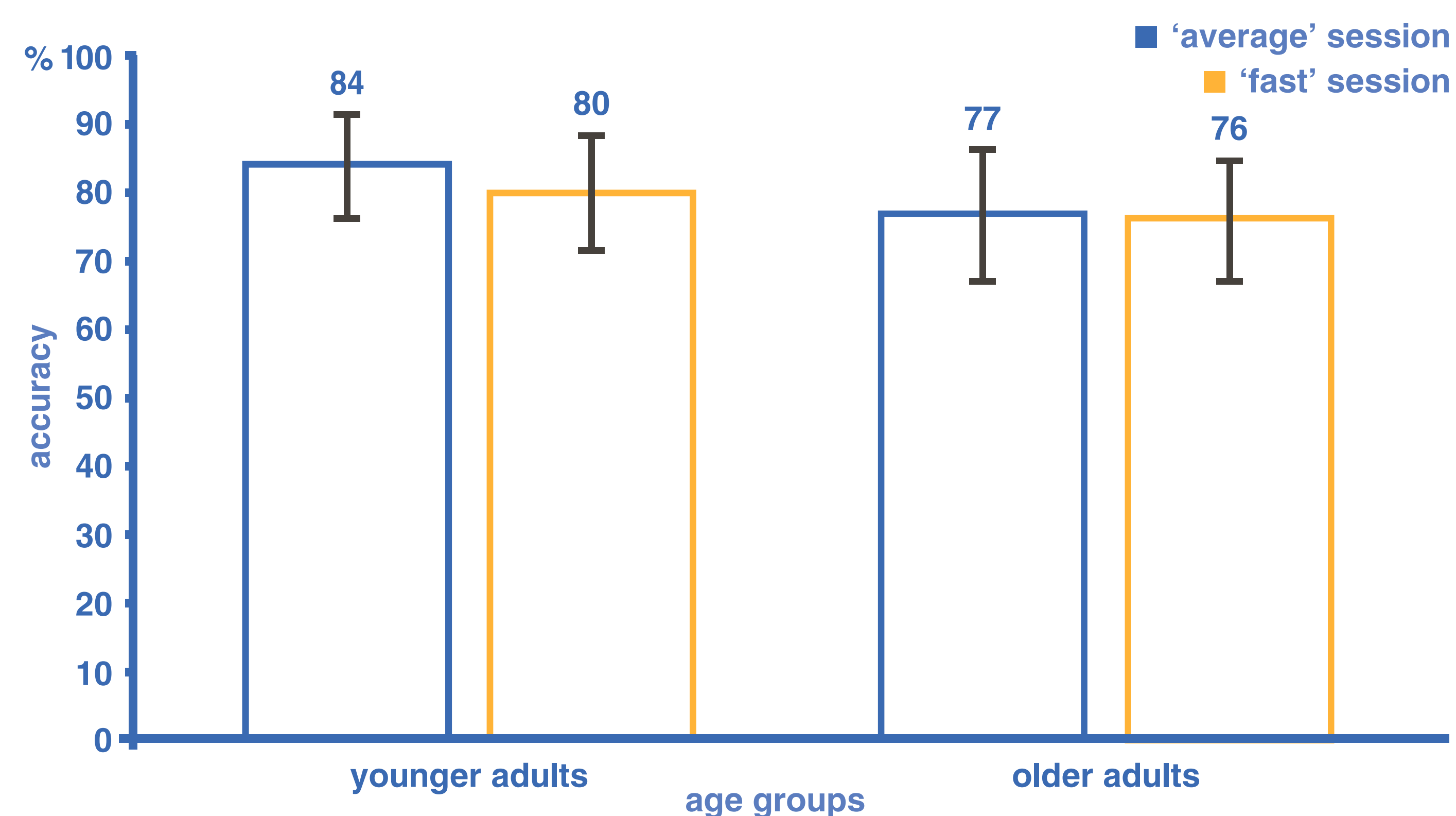
**part B:**  
words presented twice as fast ('fast')

## Hypothesis

In self-paced reading, older adults will strategically read the sentences slower than possible in order to avoid potential errors, while younger adults will perform close to the maximum possible speed.

Thus, if we increase the sentence presentation speed, the older adults' comprehension accuracy will decrease less than younger adults'

## Results



- Higher accuracy in younger adults across all three sessions SPR:  $U(36) = 202.5, p = .379$ , 'average' session:  $U(36) = 210.5, p = .263$ , 'fast' session:  $U(36) = 208, p = .294$
- Faster SPR speed in younger adults  $U(36) = 33, p < .0001$

No significant difference between accuracy decline in the 'fast' session compared to 'average' session in younger than older adults  $U(36) = 207, p = .31$

## Discussion

Younger adults' accuracy decline with a presentation-speed increase was non-significantly greater than older adults'.

→ No evidence of strategic slowing in linguistic processing in older adults.

### Limitations

- 1) Insufficient sample size (data collection is in progress).
- 2) Participants of both groups are more concentrated during the 'fast' session → accuracy increases in both groups.

## References

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### Contact us

Svetlana Malutina (s.malyutina@gmail.com)  
Anna Laurinavichyute (annlaurin@gmail.com)  
Mariia Myslina (maria.myslina@gmail.com)  
Yevgeniy Lapin (yevgeniy.d.lapin@gmail.com)