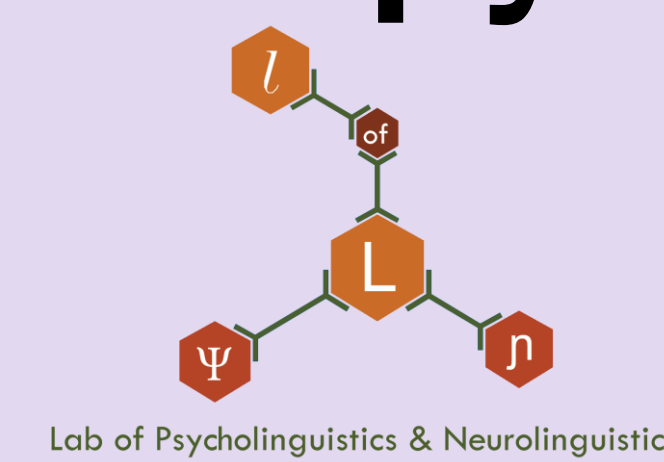
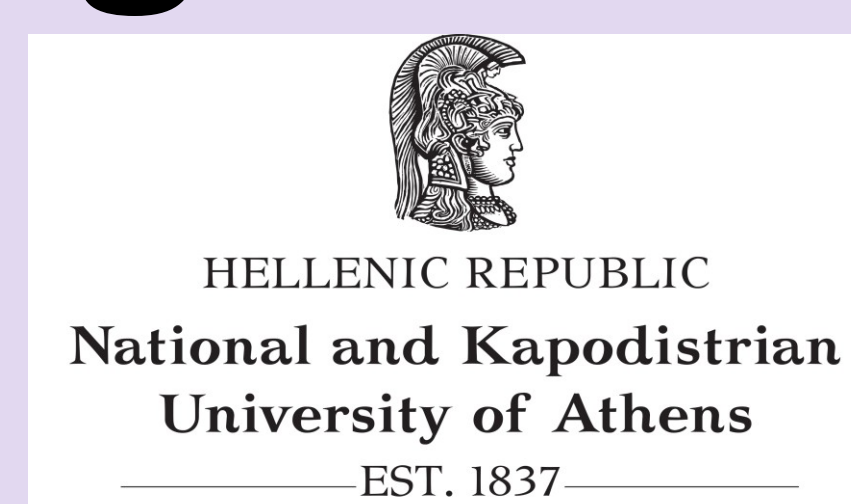


Investigating ambiguity within executive functions in atypical populations: eye tracking as a pre- and post- cognitive therapy measure

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How do individuals with atypical language resolve ambiguity during reading?

What is the role of executive function training in ambiguity resolution?

Καθώς έγραφε η πρόσκληση βράχθηκε με νερό.

Καθώς ζωγράφιζε τα βιβλία λερώθηκαν με μπογιές.

Background

- Syntactic ambiguity and executive functions (EF) have been extensively researched in typical populations without language impairments. However, the role of EF in atypical language has not been investigated in depth. Furthermore, the possible effect of cognitive training on language processing has not been investigated within an eye-tracking reading protocol.
- An experimental and a treatment study are currently **under development**, with eye-tracking reading tasks being used (a) to investigate ambiguity resolution in language disorders prior to cognitive therapy, and thus, provide insights into language processing of groups with atypical language skills, and (b) as a post-therapy measure in order to research possible differences in online language processing performance after an intensive EF training protocol.

Methods

Participants

- Adults with Broca's Aphasia and age-matched and education-matched controls
- Adolescents with Developmental Language Disorder and age-matched controls
- Adolescents with Autism Spectrum Disorder and age-matched controls

Reading tasks

- Syntactic ambiguity: garden-path sentences → subject vs. object readings

- Pragmatic ambiguity: pragmatic anomaly resolution¹

Cognitive training protocol

- Duration and frequency: 16 sessions for 2 months (twice weekly; 90 min)
- Intervention and control group (waiting list)

Aims and hypotheses

Syntax

- Investigate ambiguity resolution during reading in language-impaired populations. Longer eye-tracking measures in ambiguity resolution Areas of Interest?
- If ambiguity resolution abilities belong to higher-lever conflict resolution abilities, will EF training ameliorate reading performance?
- What kind of differences are observed between developmental and acquired language disorders?

Pragmatics

- Will individuals with ASD have difficulty processing sentences with pragmatic irrelevance more than their other atypical and typical peers?

George discovered that his brother broke the window.
When his father found out he was angry.

Are people irritated by lying?

Yes

No

Fig. 1 Examples of the syntactic (above) and pragmatic ambiguity resolution stimuli.

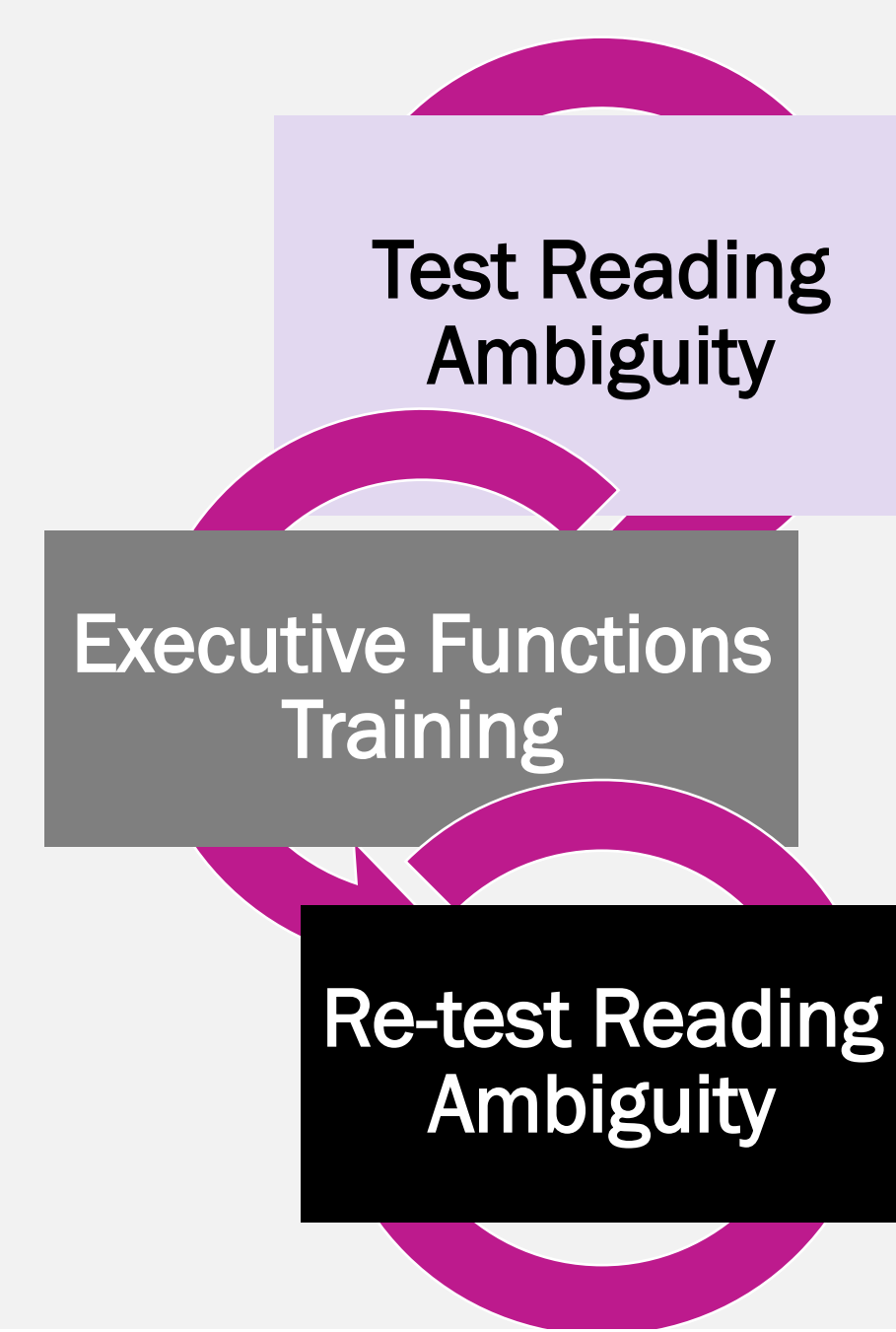


Fig. 2 Test - re-test protocol with cognitive training.

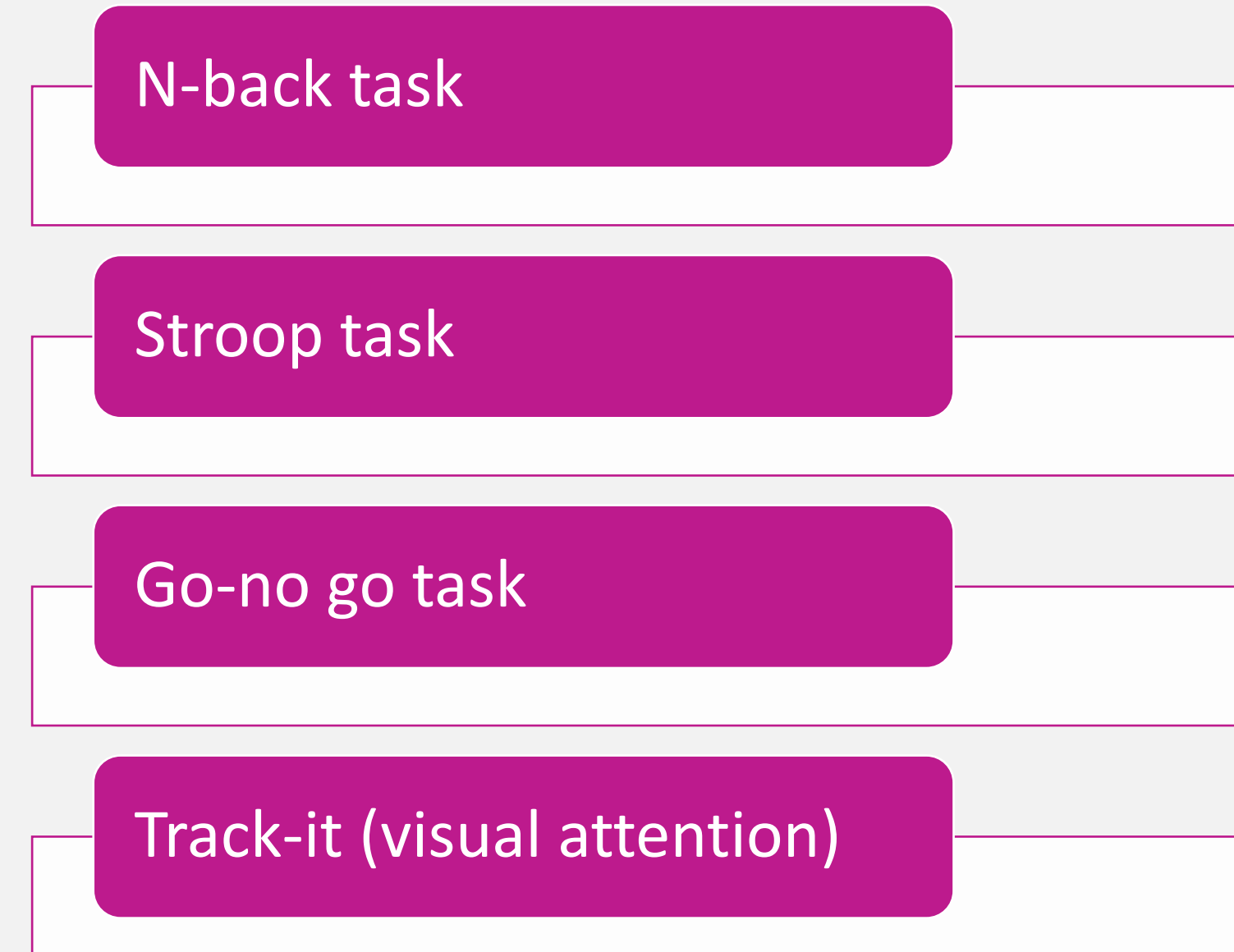


Fig. 3 Materials used in the 2-month (computerized) intervention

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Language and Executive Function Intervention Strategies in
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