Contextual Effects on Listeners' Word Recognition in Combined Degradations

A CLINICAL RESEARCH PROJECT

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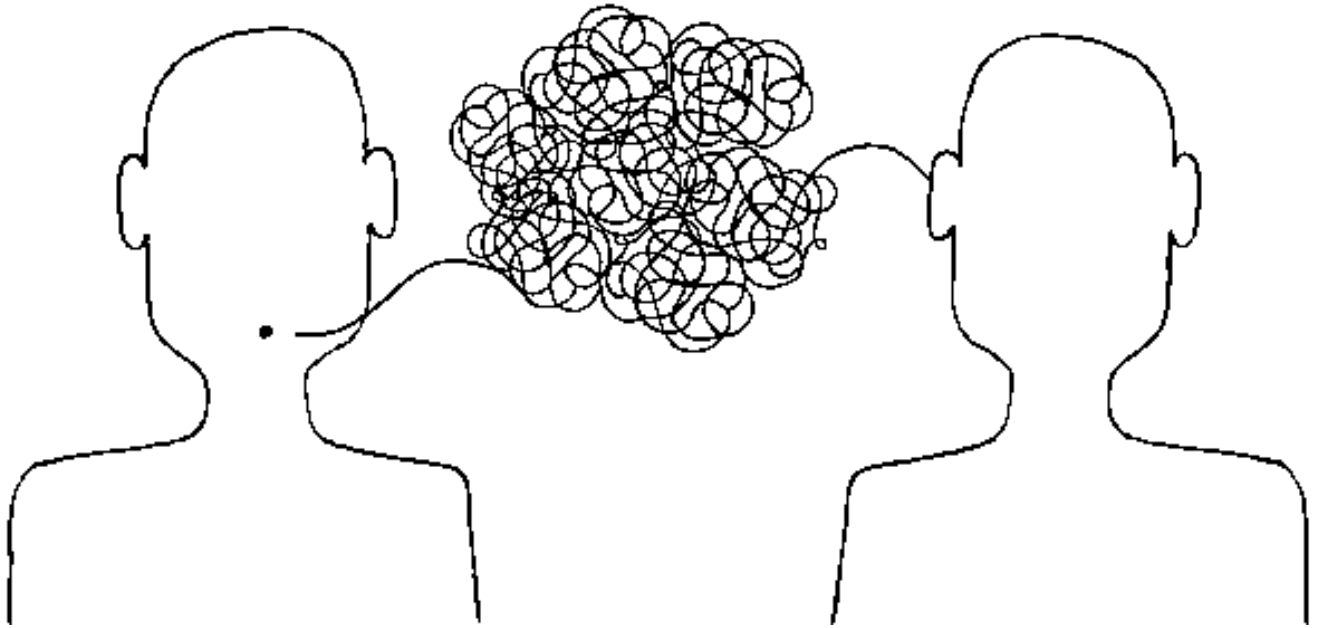
Communication Challenges



Contextual Information

"The watchdog gave a warning ."

High Predictability

"The old man discussed the ."

Low Predictability

Current Research

- Contextual Information + Background Noise
  - (Dongilli, 1994; Kinch et. al., 2018; Kalikow, 1997)
- Contextual Information + Dysarthria
  - (Garcia & Canito, 1996; Dongilli, 1994; Hammen et. al, 1991)
- Dysarthria + Background Noise
  - (Yoho & Borrie, 2018)

But…

- ~~Contextual Information + Dysarthria + Background Noise~~

Aims of the Study

- Determine whether contextual information improves listeners' word recognition in combined degradations
- Determine whether effects vary depending on speech signal or background noise

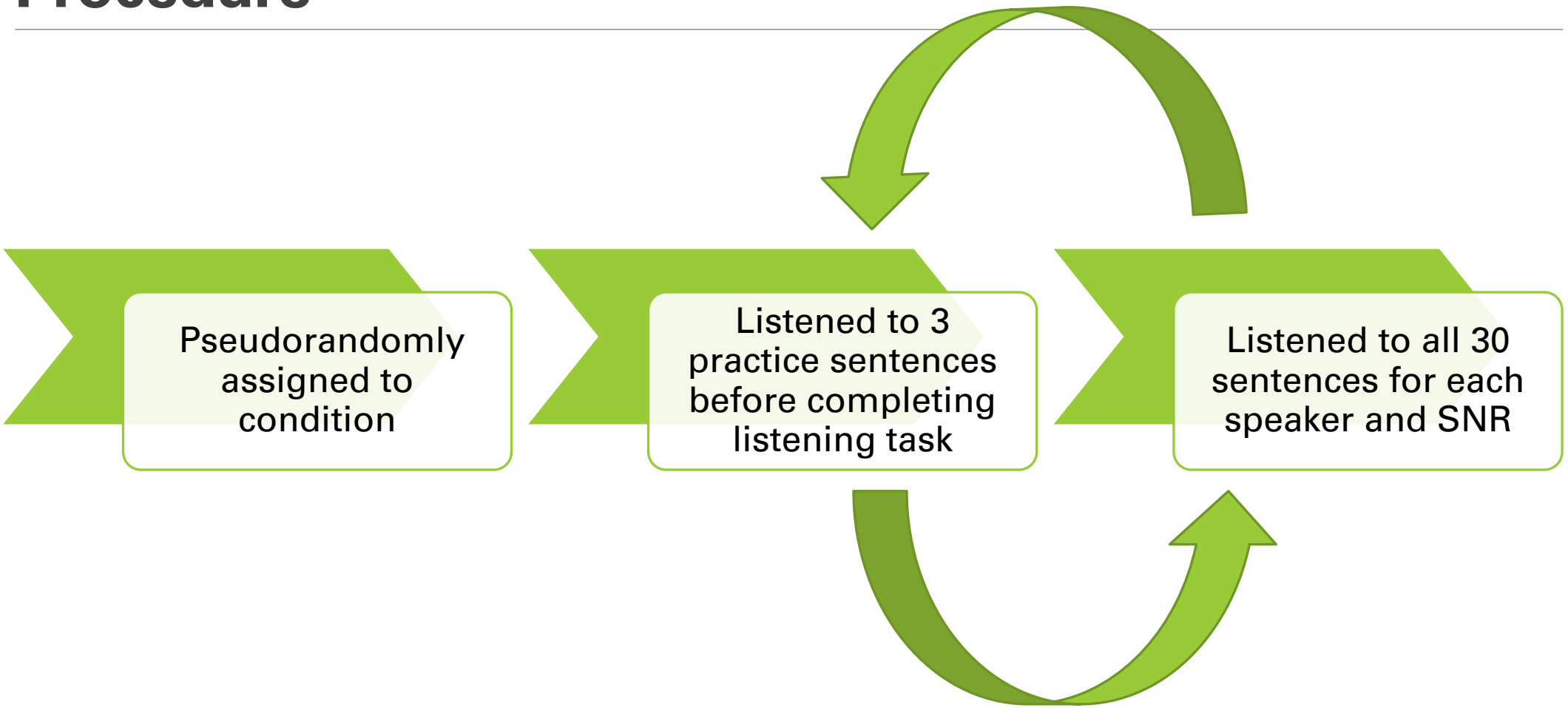
Methods

Experimental Design

2x2x3 Within-Subjects Experimental Design

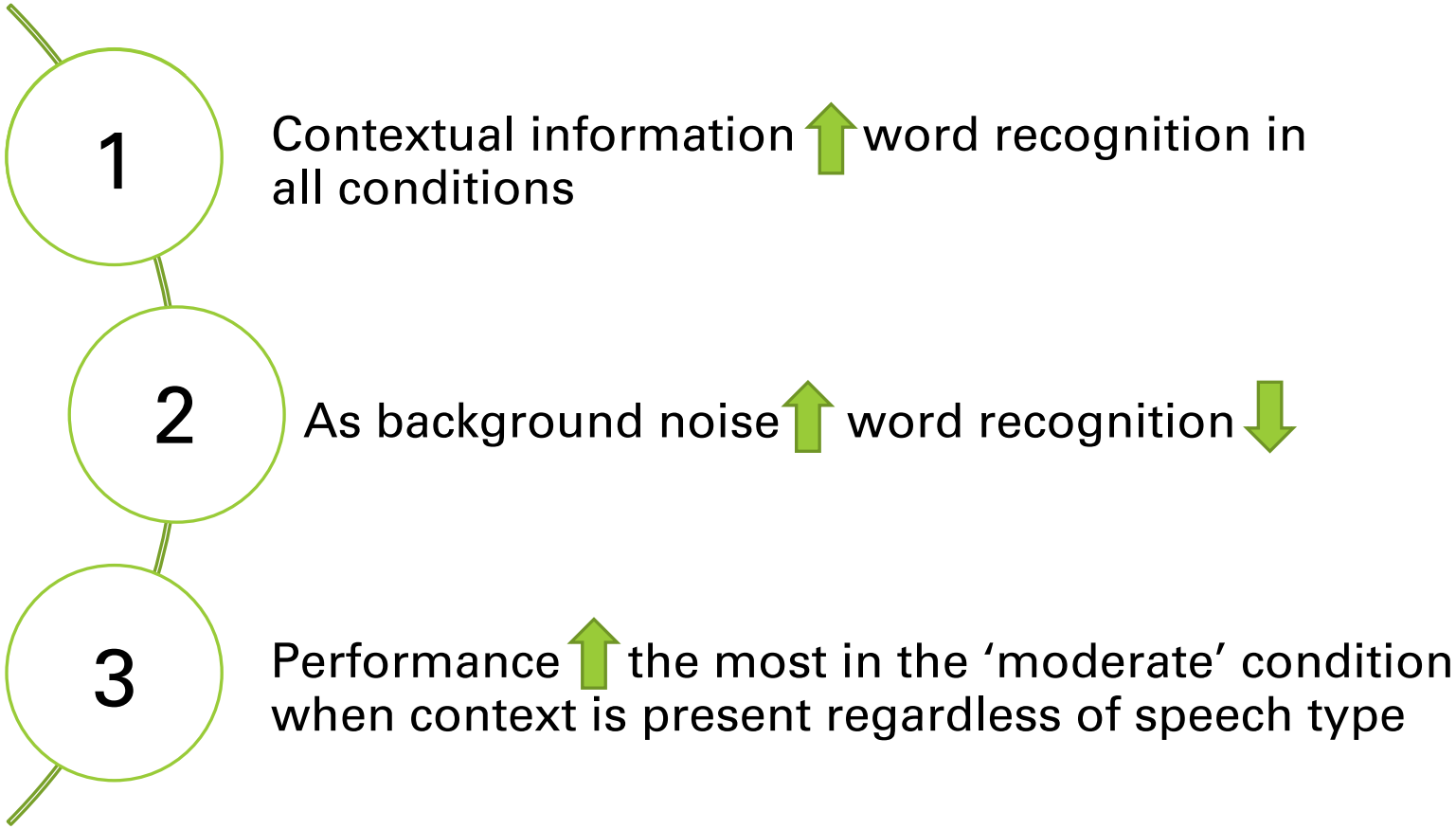
- **Independent Variable**
  - Contextual Information (Present, Absent)
  - Speech Type (Dysarthria, Neurologically Healthy)
  - Background Noise Difficulty (Easy, Moderate, Hard)
- **Dependent Variable**
  - Percent Words Correct (PWC)
    - % correct of last words for all 372 sentences

Procedure


Pseudorandomly assigned to condition
Listened to 3 practice sentences before completing listening task
Listened to all 30 sentences for each speaker and SNR

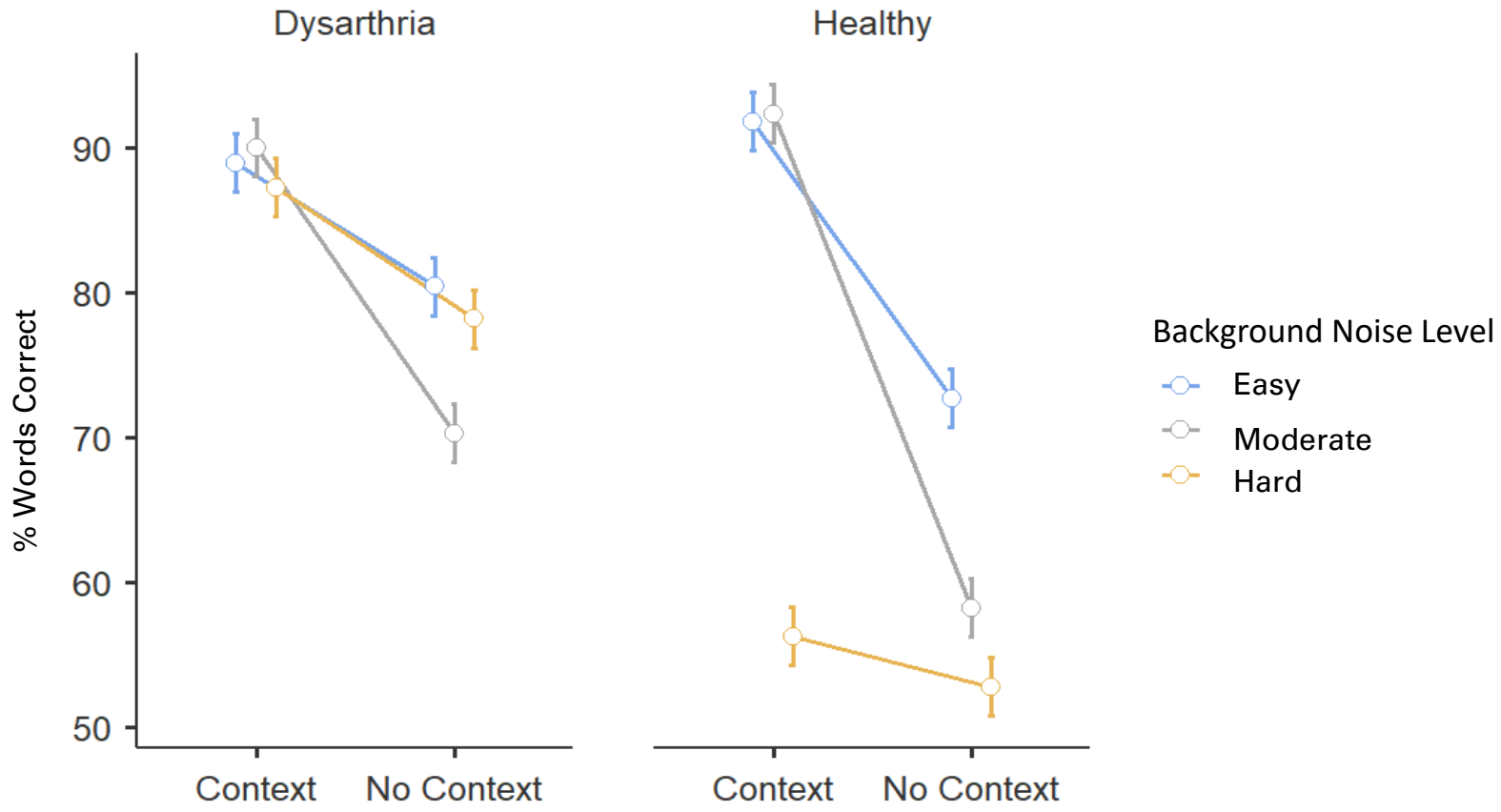
Hypotheses

Hypotheses of Interest



Results

Context x Speech Type x Background Noise



Hypotheses of Interest

Contextual information ↑ word recognition in all conditions

As background noise ↑ word recognition ↓

Performance ↑ the most in the ‘moderate’ condition, regardless of speech type

What have we learned?

Contextual information can improve word recognition in certain conditions

Why do we care?

Thank You

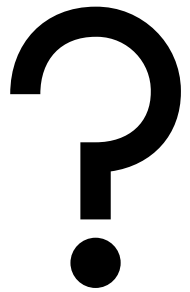
Dr. Brittan Barker

Dr. Sarah Leopold

Dr. Stephanie Borrie

Dr. Tyson Barrett

A special thanks to my research committee!



Questions