

# 8421L Screen 159 - Investigating Iconic Gesture Use During Discourse Production in Persons With Latent Aphasia



References

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## Background

Gesture use is an important aspect of human communication, enhancing the quality and specificity of language use (Arachchige et al. 2021). Cognitively healthy adults (CHA) use gestures to expand, emphasize, affirm, negate, or otherwise enrich/modify the meaning and intent of spoken language (Hostetter, 2011). Individuals with latent aphasia (IWLA), who by definition score above standardized test cut-offs for aphasia, demonstrate significant communication differences compared to CHA on discourse measures (Dalton & Richardson, 2015; DeDe & Salis, 2020; Fromm et al., 2017). It remains unclear what function gesture may have in discourse for IWLA.

To date, no studies have directly investigated gesture use in IWLA. Therefore, this study aims to:

1. Describe iconic gesture use in IWLA.
2. Compare iconic gesture use between CHA and IWLA.

## Methods

**Participants:** Discourse samples were retrieved from the AphasiaBank database.

Cognitively healthy adults (CHA; n=32) were matched to individuals with latent aphasia (IWLA; n=32) based on age, sex, race, handedness, and years of education.

**Assessments:** The discourse tasks used were Cinderella and Sandwich due to their task demands allowing for spontaneous gesture use (Sekine & Rose, 2013; Stark & Cofoid, 2022).

**Gesture Coding:** Two graduate research assistants (EM & EP) were trained to identify iconic gestures (Figure 1, Figure 2) and code whether their functions were redundant, supplemental, or essential to the spoken language (Table 1).

**Statistical Analysis:** Descriptive statistics were calculated for each group to describe patterns of gesture use in Cinderella and Sandwich tasks. To investigate these differences in gesture use, we conducted a series of linear regression models in the R statistical programming environment with the lme4 package (Bates et al., 2015).



Procedural Task



Narrative Task

Figure 1: Types of Gestures

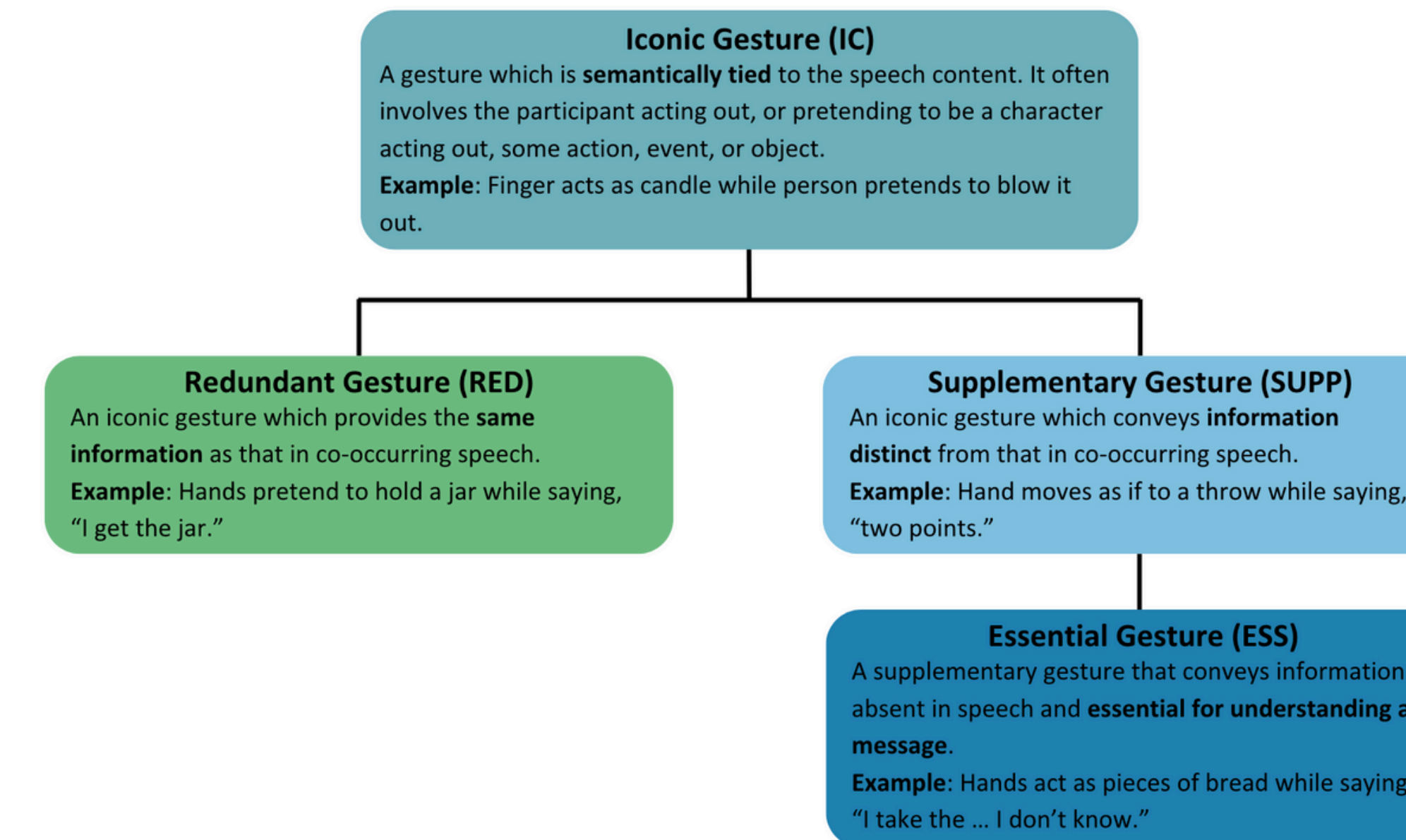


Figure 2: Examples of Iconic Gestures (Ortega & Ozyurek, 2019)

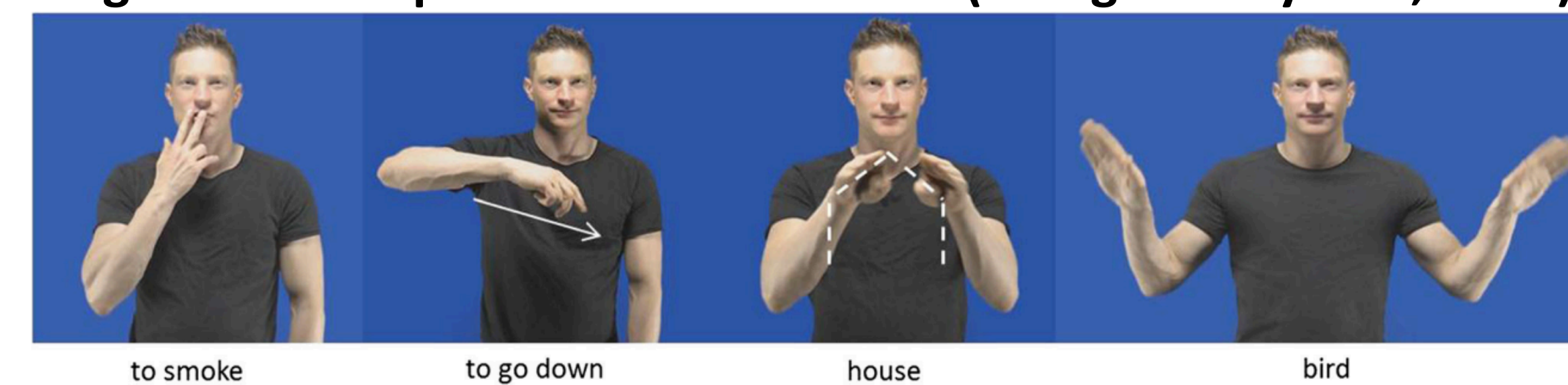
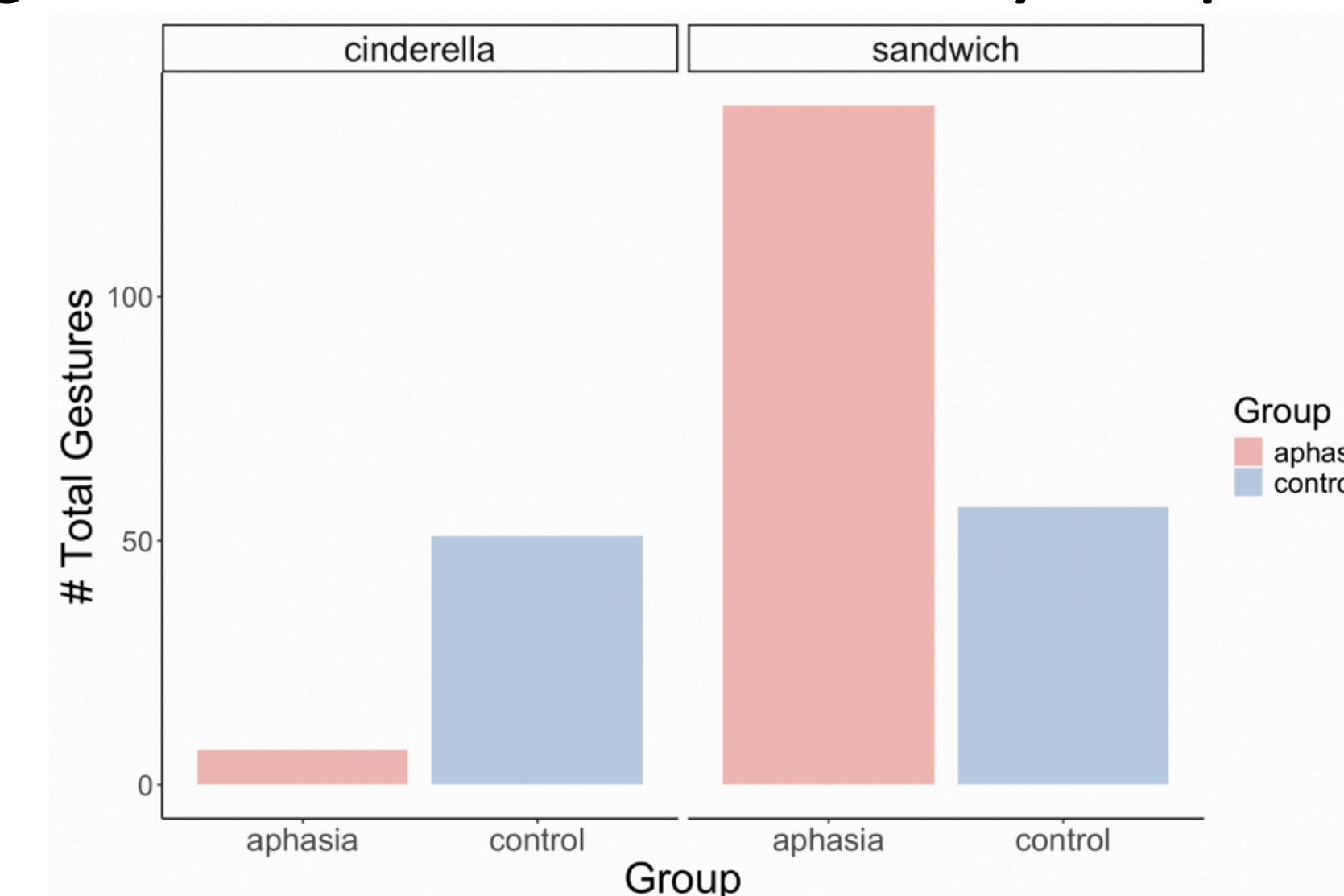


Figure 3: Total Number of Gestures by Group and Task



## Tables & Figures

Figure 4: Proportion of Gesture Type by Group and Task

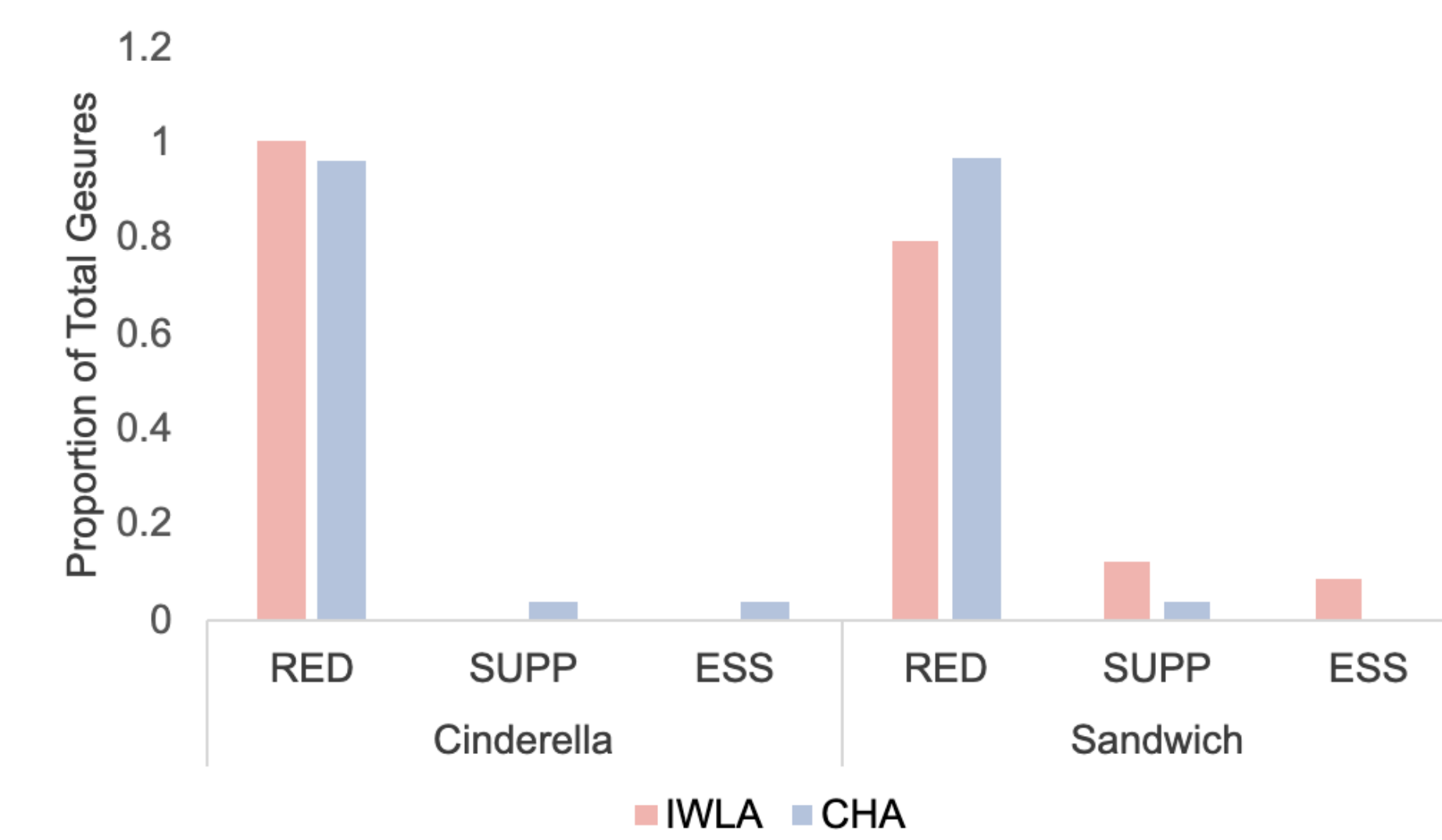
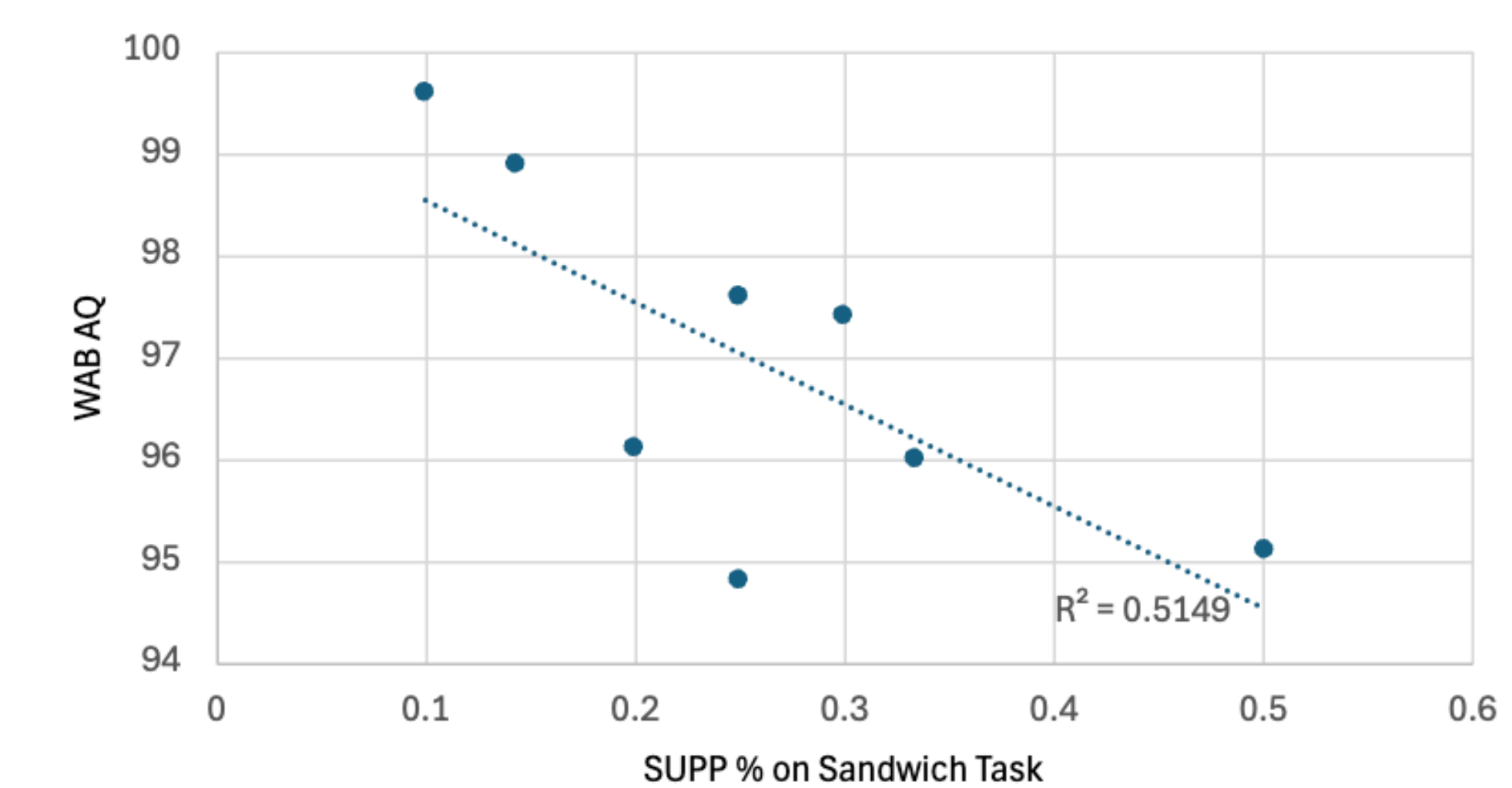


Figure 5: Percent SUPP Gestures by WAB AQ



## Results

1. IWLA produced more gestures in the Sandwich task than they did in the Cinderella task (Figure 3;  $t = 4.93$ ,  $p < 0.001$ ).
2. IWLA produced more gestures than matched CHA peers in the Sandwich task ( $t = 3.23$ ,  $p = 0.01$ ), but IWLA produced numerically less gestures than controls in the Cinderella task (Figure 3;  $t = 1.59$ ,  $p = 0.39$ ).
3. The total number of iconic gestures is nearly identical across tasks within the CHA group ( $t = 0.14$ ,  $p = 0.99$ ), but very different within the IWLA group (Figure 3).
4. The majority of gestures produced were redundant across groups and tasks, with only 9 total participants showing any supplementary gestures and only 8 producing essential gestures (Figure 4).
5. For IWLA who did produce supplementary gestures, individuals with more mild aphasia produced a lower proportion of supplementary gestures than those with more severe aphasia (Figure 5).

## Discussion

- Discussion of Current Findings
  - IWLA produced mostly redundant gestures, but individuals who produced a higher proportion of supplementary gestures had slightly more severe aphasia. In contrast, IWLA who showed a greater proportion of redundant gestures across tasks had more mild aphasia.
    - These findings in IWLA broadly align with results in persons with more severe aphasia (Stark & Cofoid, 2022; Stark & Oeding, 2024).
  - IWLA demonstrated clear differences from CHA in iconic gesture use, with IWLA varying gesture use particularly for the Sandwich procedural task and CHA remaining consistent across tasks.
- Clinical Implications
  - The differences in discourse production and iconic gesture use between IWLA and CHA support the notion that IWLA should be eligible to receive services to facilitate communication and use of gesture in discourse.
- Future Research
  - Explore why CHA gesture behaviors are similar across tasks whereas IWLA gesture behaviors significantly differ.
  - Use larger sample size to increase significance of findings, also contrasting IWLA performance to persons with more severe aphasia.