3. Narrative Organization (# of Complete Episodes)

- To control for varied story length, ratios were calculated for gesture frequency, sentence complexity, and narrative organization (e.g. # gestures/total # of T-Units)

5. Gesture Taxonomy was based on McNeill’s (1992) original 4 gesture types:
   - 1: Iconic: Physically represents the referent (e.g. body shape)
   - 2: Metaphoric: Represents some abstract concept (e.g. passage of time, justice)
   - 3: Deictic: Refers to some target in space (e.g. pointing gesture)
   - 4: Beat: Movement apex falls on the prosodic stress of an utterance/word

A gesture assistant was trained on the discourse and gesture identification methods, and coded all the samples independently. Using a point-by-point inter-rater reliability paradigm, agreement between the RA and the first author exceeded 95% for discourse coding and 90% for gesture identification.

STUDY 1 RESULTS:

- As seen in other studies (Sekine et al., 2013), PWA produced significantly shorter narratives (p < .001) and more gestures (p < .002) than controls

- PWAs: There were no significant correlations between Gesture Frequency or Sentence Complexity (left; p = .295) or Narrative Organization (right; p = .976)

- Control: There was a trending inverse correlation for Gesture Frequency and Sentence Complexity (left; p = .066), but not Narrative Organization (right; p = .912)

- PWAs and Controls Separated into Gesture Frequency Groups (Low, Mid, High)
- Gesture Frequency:

- Sentence Complexity (p = .003; High gesture in PWAs trends up for discourse, but Controls trend down)

- Narrative Organization (p = .005; Again, PWAs trend up for discourse, but Controls trend down)

DISCUSSION:

- Gesture frequency does not seem to be associated with better discourse production, for either Sentence Complexity or Narrative Organization
- From the smaller samples, over 40% of the total group PWA gestures were either classified as Lexical Retrieval or Other; Total Control Gestures had less than 15%
- PWAs produced more gestures that do not fit clearly into McNeill’s taxonomy
- Gestures in PWA may be playing some cognitive role (e.g. attempting to assist in getting a word/production out), or the linguistic/representational deficit in aphasia may be more profoundly linked with gesture
- Extensions of this study will examine:
  i) Does gesture use affect the content of the story (e.g. critical story elements, number of novel propositions)
  ii) Does the use of a gesture during a dysfluency lead to the appropriate resolution (e.g. finding the word one wants)

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REFERENCES:

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- Persons With Aphasia (PWA) produce gestures despite inherent language difficulties
- PWA (non-fluent and fluent) tend to gesture more than controls (Sekine et al., 2013)
- In PWA, gesture may tax already limited cognitive resources (Meinzer et al., 2007)
- CODING:
  - Narrative Samples were transcribed and analyzed for (Lê et al., 2011):
    1. Story Length (T-Units)
    2. Sentence Complexity (# of subordinated clauses within all matrix clauses)

- METHODOLOGY:
  - 29 Non-fluent PWAs (11 female; mean age 54.6) from AphasiaBank (MacWhinney, 2000)
  - Diagnosed as Broca’s Aphasia via Western Aphasia Battery (WAB)
  - 29 age- and gender-matched controls
  - Asked to retell the Cinderella story after reviewing a story book without words outlining the story; story was retold without the story book present
  - Study 1: Full narratives were coded for discourse measures (see below) Study 2: As a follow up, we analyzed a smaller section of these narratives to identify specific gesture types
  - Included gestures produced during sections pertaining to the Ball (i.e. Cinderella arriving at the Ball to leaving the ball at Midnight) because: i) the Ball is a central story event, ii) the aphasia narrative protocol specifically asks about this event when a PWA doesn’t produce any language (i.e. Did Cinderella go to the ball?)
  - 21 of the 29 PWA produced at least some information about the ball and, along with their age- and gender-matched controls, were included in this analysis (PWA N=21, Controls N=21; Total N=42)
  - Results were analyzed using a One Way ANOVA between groups for discourse measures and gesture types