Adjective Use by Individuals with Agrammatic Primary Progressive Aphasia
Primary Progressive Aphasia

PPA is a neurodegenerative disease affecting language capabilities but leaving other cognitive facilities relatively spared (Mesulam et al. 2012)

Three major subtypes with characteristic neurolinguistic & neuropathological profiles (Gorno-Tempini et al. 2011; Thompson and Mack 2013; Ash et al., 2009; Thompson et al. 2012)

- Logopenic (PPA-L)
- Semantic (PPA-S)
- Agrammatic (PPA-G)

PPA-G characterized by:
- Effortful speech, ungrammatical sentence production
- Spared single word comprehension
- Impaired verbs, but relatively spared nouns in production

But, what about adjectives?
Adjectives (in English)

Don’t inflect for tense
Don’t show person agreement

Can be sentential predicate
Often less imageable

Nouns
Have a referential index

Adjectives

Verbs
Project structure for a subject

(Meltzer-Asscher and Thompson, 2014; Baker 2003)
Predicative vs Attributive Usage

The dress is nice

 Predicative

The nice dress flutters

 Attributive
Adjunction

Verb argument

Adjunct

Det the N’ I’ NP VP

IP

Det the N’ I NP V’ V AP

is nice

dress

Det the N’ I’ NP VP

IP

Det the N’ I NP V’ V

AP nice N’
dress

flutters
Prior Work

Adjuncts are computationally more expensive than verb arguments
(Boland, 2005; Kennison, 2002; Lee and Thompson, 2011; Liversedge et al. 1998; Shutze & Gibson 1999)

Patients with agrammatism have deficits in building syntactic structures
(Friederici et al. 2003; Grewe et al. 2005)

Patients with stroke-induced agrammatic aphasia use a greater proportion of predicative adjectives & fewer attributive adjectives compared to controls
(Meltzer-Asscher & Thompson, 2014)

Would the agrammatic PPA patients show a similar deficit profile with attributive adjectives?

Could this be attributed to a deficit in building adjunct structures?
Outline

Primary Progressive Aphasia
Adjectives & Adjuncts

Prior work

Current investigation
She’s nice. Dusting (3 sec). Wash (3 sec). The old man (4 sec). Wicked uh sisters uh two three five uh. The horse (5 sec) dog uh bird (3 sec) mouse uh uh is (3 sec) cut (11 sec) dress (2 sec). Be (4 sec) alright. Pumpkin. Pull over uh uh. The uh prince (2 sec). The love uh. We dance (2 sec). Oh no uh noon. How uh get out uh uh? Shoe uh glass shoe (5 sec) found its uh uh. Pulling (3 sec) shoe uh. No ties. Yes. The end.

Cinderella narrative produced by a gentleman with agrammatic aphasia

From Thompson & Mack (2018)
Current investigation

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Age [years]</th>
<th>Gender</th>
<th>Time since onset [years]</th>
<th>MMSE [/30]</th>
<th>WAB AQ [/100]</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPA-G</td>
<td>41</td>
<td>65.4 (7.68)</td>
<td>25 M / 16 F</td>
<td>3.86 (2.66)</td>
<td>24.8 (4.33)</td>
<td>83.5 (7.90)</td>
</tr>
<tr>
<td>Controls</td>
<td>24</td>
<td>62.4 (7.17)</td>
<td>13 M / 11 F</td>
<td></td>
<td>29.7 (.55)</td>
<td>99.8 (.53)</td>
</tr>
</tbody>
</table>

Narratives transcribed, adjectives coded as predicative or attributive

<table>
<thead>
<tr>
<th>Utterance #</th>
<th>Utterance</th>
<th>Adjective</th>
<th>Predicative</th>
<th>Attributive</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The nice dress is (uh) black</td>
<td>nice</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>The nice dress is (uh) black</td>
<td>black</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>
Relationship to Subject Clefts

If attributive deficit reflects an adjunction deficit, could this correlate with other examples of adjunct structures?

Subject cleft: *It is the dress that is nice*

Subject clefts evaluated by Northwestern Anagram Test (NAT)  
(Thompson, Weintraub, and Mesulam 2012)
Correlations between NAT Subject Cleft scores and Adjective Usage

**Predicative**

\[ R = 0.019, \ p = 0.91 \]

**Attributive**

\[ R = 0.35, \ p = 0.027 \]

- Agrammatic PPA
Conclusions & Future directions

What we found:
- Deficit in *attributive* but not predicative adjective usage, like with agrammatic stroke patients (Meltzer-Asscher & Thompson, 2014)
- Attributive adjective usage correlates with subject cleft scores
- Perhaps related to the more difficult adjunct structure
- *This isn’t necessarily an adjective issue but a syntax issue that affects adjectives*

What lies ahead:
- Comparison with other types of PPA (semantic, logopenic)
- Would different adjective functions interact differently with the adjunct deficit? (Cinque, 1994)
- Possible online measures of adjunct structures to further probe attributive adj-subj cleft relationship
THANK YOU!

Research participants and families
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