

# The Processing of Pronouns & Reflexives in Children With SLI

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## Introduction

- Children with SLI appear to have difficulties with long-distance grammatical relationships.
- A particular area of difficulty is in binding relations (van der Lely 1998; van der Lely & Stollwerck, 1997); the restrictions on pronoun and reflexive antecedents.
- Only off-line, final comprehension tasks (e.g., picture-pointing) have been employed and have yielded somewhat mixed results.
- This experiment used a cross-modal picture priming (CMPP) task (McKee et al., 1993) with auditory sentences and picture probes to examine SLI children's activation of antecedents for pronouns and reflexives.

## Method

### Participants

- 13 children with SLI and 24 age-matched children with TLD (8;3-10;11) participated.
- All children passed a hearing screening and had non-verbal IQs within normal range.
- Children with SLI scored at least 1 SD below the mean on at least 2 subtests of the CELF-3/CELF-4.
- Children with TLD scored within normal limits

### Stimuli

- 30 experimental sentence triplets
- Each triplet consisted of a sentence with two nouns and, for the three conditions, a pronoun, a reflexive, or a third noun.
- For each triplet, a single picture was selected that represented the antecedent of the second (embedded subject) noun (antecedent of the reflexive).
- The same picture was presented with each of the three conditions (presentations) of a given triplet.
- Thus, there were 30 sentences in which the probe corresponded to the legal, activated antecedent.
- Six practice sentences and 24 filler sentences.

**Pronoun condition (P):** The alligator knows that the leopard with the green eyes is patting him\* on the head with a soft pillow. (illegal)

**Reflexive condition (R):** The alligator knows that the leopard with the green eyes is patting himself\* on the head with a soft pillow. (legal)

**Noun condition (N):** The alligator knows that the leopard with the green eyes is patting the girl\* on the head with a soft pillow. (unrelated)

### \*Picture Probe



### Procedure

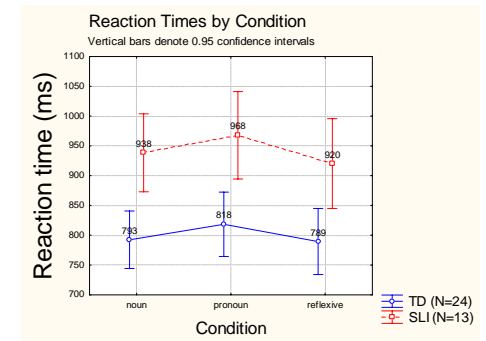
- Each sentence triplet member (condition) was presented once in one of three sessions.
- The same picture probe was presented with each member of a given triplet.
- The probe corresponded to the legal antecedent in one condition for each triplet).
- Random order within session and sentence assignment to session was counterbalanced across subjects.
- At the offset of the **pronoun, reflexive, or third noun**, a picture probe was presented (e.g., leopard).
- The child pressed one of two buttons indicating whether the picture was something "alive" or "not alive."
- The experiment was controlled by E-Prime, which also recorded RT from the onset of the picture probe to the button press by the child.
- To verify children's attention to the sentences, ten sentences in each session were selected randomly and the children were asked to repeat the sentence.
- RT Analysis was conducted for correct responses.

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## Results

- Children with SLI were less accurate (86%) in their picture judgments than children with TLD (95%).
- A Hierarchical Linear Modeling (HLM) Analysis compared the RT data across the three conditions and across groups.
- SLI children were slower than TLD children (intercept = 819, SLI coefficient +145ms, se =43 t(35) =3.35, p=.002).
- The pronoun condition was significantly slower than the reflexive condition. There was no difference between noun and reflexive conditions
- With a pronoun intercept, noun effect is -27ms (SE= 12.9, t(35) =2.15, p=.04) and reflexive effect is -30ms (SE=10.8, t(35)=2.78, p=.009).
- There was no Group X Condition interaction, indicating that SLI children exhibit the same pattern of responses as the TLD children.



## Conclusions

- Both groups showed the expected activation of the pronoun antecedent and of reflexive antecedent.
- Children with SLI establish long-distance binding relations in language processing similar to their age-matched TLD peers.
- Contradicts previous findings (van der Lely & Stollwerck, 1998) .
- The picture-decision RT of children with SLI is generally slower than their age-matched peers.
- This may reflect slower processing overall or simply slower and less accurate lexical (picture) decisions.
- The RT for the noun condition was not significantly different from the reflexive condition, but they were faster for different reasons.
- The fast noun RT may reflect the absence of a search for an antecedent at the probe point.