Method

- Recruitment took place at the Minnesota State Fair in a university-sponsored building dedicated to research.
- Research assistants administered a nonverbal cognitive test, expressive language test, and metalinguistic probe to participants in 30-minute intervals.

Participants

- 14 sets of twins (n = 28) and 28 matched singletons
- Grouped by age:
  - 3-4 years (n = 20)
  - 5-6 years (n = 20)
  - 7-8 years (n = 16)
- Groups matched on gender, native language, ethnicity, and socioeconomic status.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>3-4 Year</th>
<th>5-6 Year</th>
<th>7-8 Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yr) Mean</td>
<td>3.90</td>
<td>5.57</td>
<td>7.64</td>
</tr>
<tr>
<td>SD</td>
<td>.61</td>
<td>.48</td>
<td>.52</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>5.5</td>
<td>5.5</td>
<td>5.3</td>
</tr>
<tr>
<td>Female</td>
<td>5.5</td>
<td>5.5</td>
<td>5.3</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>10.0</td>
<td>10.0</td>
<td>8.0</td>
</tr>
<tr>
<td>Other</td>
<td>1.0</td>
<td>0.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Income &lt;50k</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.0</td>
<td>1.0</td>
<td>0.0</td>
</tr>
<tr>
<td>$50-$100k</td>
<td>1.0</td>
<td>1.0</td>
<td>0.0</td>
</tr>
<tr>
<td>&gt;$100k</td>
<td>9.0</td>
<td>4.0</td>
<td>8.0</td>
</tr>
</tbody>
</table>

Background

- Metalinguistic awareness reflects the ability to think about and reflect on language.
- Research suggests that the language development of twins is delayed compared to singleton peers (Thorpe, 2006), but little is known regarding the metalinguistic skills of twins.
- Previous twin studies have generally focused on the language development of children 0 to 3 years of age.
- The current study aimed to examine the language and metalinguistic skills of 3- to 8-year-old twins.

Study supported by the UMN Undergraduate Research Opportunity Program. The authors have no financial or nonfinancial relationships to disclose.

Tasks

- **Clinical Evaluation of Language Fundamentals (CELF-4; Semel, Wiig, Secord, 2003), Recalling Sentences Subtest:** assesses expressive syntax and morphology.
- **Kaufman Brief Intelligence Test (KBIT-2; Kaufman & Kaufman, 2004), Matrices Subtest:** assesses nonverbal cognitive abilities.
- **Metalinguistic Probe:** evaluates ability to analyze vocabulary and grammatical forms. See description of tasks below.

Results

- **7-8 Year:**
  - Twins preformed significantly lower than singletons on Wug Task (Metalinguistic Morpheme production) task (p = .02).
- **5-6 Year:**
  - No significant differences between twins and singletons on any measures.
- **3-4 Year:**
  - No significant differences between twins and singletons on any measures.

Discussion

- There was a trend for singletons to outperform twins on each metalinguistic task; however, the only significant difference was for the 7-8 Year Group on the Wug Task.
- Study findings suggest that delays in the language development of twins may apply to metalinguistic skills and may extend through early elementary school age.
- Future research is needed which includes larger sample size and more extensive language assessment batteries.

- **Task 1: Word Manipulation**
  - My friend and I are making up a new language. Could this be a gok? Yes it could. What is this?
  - Can you eat a gok?
  - Do goks have wheels?

- **Task 2: Word Swap**
  - Suppose that everyone in the world agreed that from now on we will call the sun the moon and the moon will be called the sun.
  - What would this be? (moon)
  - What will the sky look like when you see this? (blue)

- **Task 3: Wug Task**
  - I am going to show you some pictures and say some sentences. Sometimes a word will be missing. I want you to tell me the missing word.
  - This is a wug. Now there is another one. There are two of them. There are two ______.

- **Task 4: Grammatical Judgment**
  - Wobo is a creature from outer space. Sometimes she says things the wrong way. Sometimes she says things that are silly.
  - Apples grow on noses.
  - I have two pencils.