

Assessing children's understanding of complex syntax: a comparison of two methods

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Background

During the process of child language development it is often the case that children will demonstrate language knowledge, which is sufficient to support comprehension but is insufficient for production (Fraser, Bellugi & Brown, 1963). However, with respect to complex syntax the opposite appears to be the case, with language production presenting as superior to comprehension (Håkansson & Hansson, 2000). The current study aimed to compare children's performance on two receptive language measures, using a multiple-choice picture-matching sentence comprehension task and a newly devised computerized animation task.

Methodology

Participants

- 103 typically developing children participated
- Six age bands, between 16 - 18 children in each (3;06 – 3;08, 3;09 – 3;11, 4;0 – 4;02, 4;03 – 4;05, 4;06 – 4;08, 4;09 – 4;11)
- Recruited through nurseries and primary schools in the Oxford area.
- Included on the basis that they:
 - had never been referred for speech and language therapy,
 - spoke English as their first language and the language of the home
 - had no known intellectual, neurological or hearing difficulties
- All children completed
 - A hearing screen at 25dB level (1000, 2000 and 4000Hz)
 - The Good-Enough Harris (1963) draw a person test (to ensure cognitive ability within the normal range)
 - The sentence recall subtest from the Clinical Evaluation of language fundamentals: Preschool (2004) to ensure language abilities within the norm.

Procedure

Animation Task

The animation task was presented on a Microsoft Surface Pro. Children were shown fifty animations representing one of five types of relative clause; subject (both intransitive and transitive), object, indirect object and oblique. All fifty relative were attached to the direct object of a transitive clause and are therefore categorized as full bi-clausal relatives. A screenshot of an animation for the sentence *She tickled the boy she read the story to* is shown in Figure 1. Example test Sentences are given in Table 1.



Figure 1.

Multiple choice task

The multiple-choice task was a sentence-picture matching task designed to assess the same relative clause structures as those in the animation task previously described. Children were given each sentence orally and were asked to choose the picture that corresponded to that sentence. The other three images were distractors, which included role reversal of the main clause (the relative clause is understood), role reversal of the relative clause (the main clause is understood) and role reversal of both main and relative clause. The sentence *He saw the girl that picked the flowers* is shown in Figure 2.

Table 1.

Relative clause type	Example test sentence
Subject intransitive	He found the girl that was hiding
Subject transitive	He pushed the girl that scored the goal
Object	The boy picked up the cup that she broke
Oblique	The man opened the gate she jumped over
Indirect object	She kissed the boy she poured the juice for.

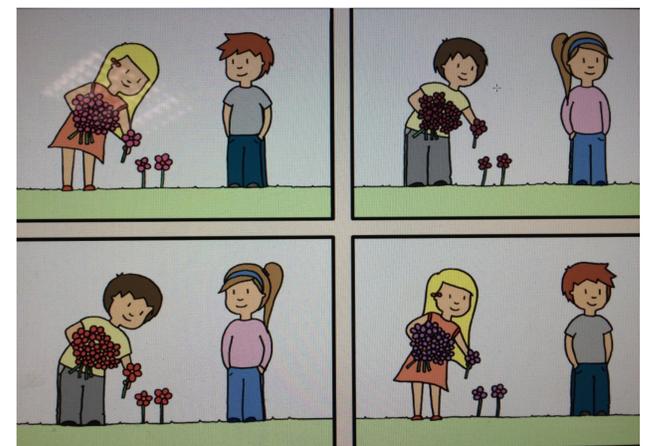


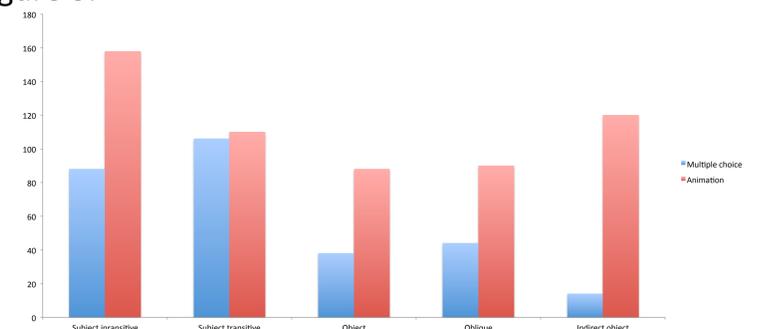
Figure 2.

Scoring

For the purpose of statistical analysis and to allow both assessments to be compared based on similar probabilities, a two tiered coding system was applied; one strict and one more lenient. In the strict coding the child was given 2 if they answered 4 out of 4 correctly on the multiple choice task and either 9 or 10 out of 10 correctly on the animation task, ensuring full mastery of the construction. In the more lenient coding the child was given 1 if they answered 3 out of 4 correctly on the multiple-choice task and 8 out of 10 on the animation task – indicating a performance level above chance. A score less than or equal to 2 out of 4 or less than or equal to 7 out of 10 was coded as 0 and indicated that the child did not yet understand the sentence.

Results

Preliminary analysis showed that the children performed significantly better overall on the animation task than on the multiple choice task. With the exception of one sentence type (transitive subject relative clauses) the new animation assessment indicated greater competence on all constructions than the multiple choice assessment that has been the standard assessment used by clinicians. See figure 3.



Conclusions

When assessing children's syntactic knowledge therapists should be cognizant of the additional processing load resulting from the design of multiple-choice comprehension tasks. This study highlights the fact that these multiple choice assessments are invoking skills beyond the purely linguistic.