Sentence repetition - a valid test of syntactic knowledge?  
- the use of different scoring methods for gaining insight  
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Background
Sentence repetition (SR) tasks are widely used as measures of syntactic knowledge in populations with and without language disorders. However, it is not always clear to what extent tasks actually measure syntactic knowledge rather than e.g. vocabulary or general processing skills.

The present study investigates the construct validity of a researcher created SR task by evaluating if the results obtained with different scoring methods reflect the dimensionality of the syntactic construct (e.g. canonical and non-canonical constructions).

Methods
Participants
102 grade 6 students (=12 year olds) from ordinary Danish classrooms completed the SR task. They all spoke the majority language, Danish, at home.

Sentence repetition
The task included 30 reversible sentences, some had canonical word order (SVO and subject relative) and some had non-canonical word order (passive, OVS, object relative and oblique) (see examples in Table 1). All lexical items were assumed to be well-known to grade 6 students.

Responses were scored for
1) accuracy (verbatim repetition),
2) preservation of syntactic construction,
3) change of non-canonical construction to canonical.

Cronbach’s α: 0.86 for accuracy and 0.76 for preservation of syntactic construction. The two scoring methods were strongly correlated: r = .78.

Table 1. Syntactic constructions included in the sentence repetition task, with item examples. Construction types with underscore are canonical constructions, the other constructions are non-canonical.

<table>
<thead>
<tr>
<th>Syntactic construction</th>
<th>Number of items</th>
<th>Item length, (words)</th>
<th>Item example</th>
</tr>
</thead>
<tbody>
<tr>
<td>SVO</td>
<td>4</td>
<td>7</td>
<td>the little donkey teased the-kid in the-paddock</td>
</tr>
<tr>
<td>Passive</td>
<td>4</td>
<td>11</td>
<td>the-ballet-dancer with the sore feet was attacked by the talented singer</td>
</tr>
<tr>
<td>OVS</td>
<td>6</td>
<td>8-9</td>
<td>the-sly witch should the cheerful wizard probably summon</td>
</tr>
<tr>
<td>Subject relative</td>
<td>4</td>
<td>8</td>
<td>in the-morning practiced the-musician who had hit the-soldier</td>
</tr>
<tr>
<td>Object relative</td>
<td>8</td>
<td>8-9</td>
<td>the-secretary that the-mail-carrier had pushed went directly on holiday</td>
</tr>
<tr>
<td>Oblique</td>
<td>4</td>
<td>11</td>
<td>the red house that the-man with the-wooden-leg lives in must be-vacated</td>
</tr>
</tbody>
</table>

Results

Table 2. Descriptive statistics for sentence repetition accuracy and syntactic preservation.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>min. - max.</th>
<th>Skew</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accurate</td>
<td>.57</td>
<td>.20</td>
<td>.13 – 1.00</td>
<td>-1.18</td>
</tr>
<tr>
<td>Syntax preserved</td>
<td>.87</td>
<td>.11</td>
<td>.50 – 1.00</td>
<td>-1.14</td>
</tr>
</tbody>
</table>

Accuracy
One-way repeated measures ANOVA (with Greenhouse-Geisser correction): F(4,2,429.2) = 93.6, p < 0.001, n²p = 0.48

Pattern of accuracy: Subject Relative > SVO > Object Relative > OVS = Passive > Oblique.

Syntactic preservation
One-way repeated measures ANOVA (with Greenhouse-Geisser correction): F(3,0,298.4) = 34.7, p < 0.001, n²p = 0.26

Pattern of syntactic preservation: Subject Relative = SVO = Passive > Object Relative > OVS = Oblique.

Canonical constructions were preserved better than all non-canonical constructions except the passive construction.

Change of non-canonical to canonical construction
Changes to canonical constructions were relatively rare, but 54 participants changed OVS items to canonical SVO:

Friedman’s ANOVA: χ²(3) = 993.4, p < 0.001

Pattern of change to canonical: OVS > Passive = Object relative = Oblique.

Discussion
The results confirm that the SR task measures aspects of syntactic knowledge:

- various syntactic constructions have different patterns of accuracy and syntactic preservation.
- overall, canonical constructions had a higher level of accuracy and syntactic preservation. However, the passive construction was error prone but not vulnerable to syntactic change, possibly because the passive is signalled both by word order and verb morphology.
- various non-canonical constructions differ with respect to inaccurate repetition as canonical construction.
- the OVS construction was most susceptible to change to canonical SVO, possibly because the OVS rarely occurs in isolation in Danish language use and because it relies solely on word order.

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