Verb lexicons in SLI
Some experimental data from Modern Greek*

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The aim of this study is to investigate the verb lexicons of Greek children with SLI on the basis of experimental data from production and comprehension tasks. Two groups of children participated in the experiments: one group of 4 SLI children and one control group of normally developing children matched on chronological age. As the production data analysis indicates, SLI children use a limited verb lexicon comprising a considerable number of light verbs that were often used in a non-adult fashion. Despite the apparent differences between SLI children’s verb production and that of the control group, it is argued that the verb lexicons of SLI children are compatible with the adult verb system in Modern Greek. Based on comprehension data, it is suggested that SLI children’s problems in verb production can be attributed to difficulties in verb retrieval rather than to completely impaired lexical representations.

Keywords: Specific Language Impairment, picture description/pointing task, lexical diversity, light verbs, lexical access, lexical representation

1. Introduction

The term Specific Language Impairment (SLI) is used to describe delays and/or disorders in the process of language acquisition in the absence of any hearing loss, mental retardation (performance IQ is within normal range), motor-articulator impairment or psycho-emotional disorders (Stark & Tallal 1981; Gopnik & Crago 1991). Although SLI children do not constitute a homogenous group with regard to their language limitations, some hallmark characteristics...
have been identified (Bishop 1992, 1994; Leonard 1989; Rice 1991). SLI children meet problems in lexical acquisition and have extraordinary limitations in grammatical morphology (for review, see Leonard 1998).

As far as their lexical abilities are concerned, it was found that they are late in acquiring their first word, while their lexical limitation problem persists during the preschool and school years (for review, see Leonard 1998). This limitation is usually described as a word-finding problem, that is, a problem in generating the particular word called for in the situation (McGregor & Leonard, 1995).

Recently, the focus of research on the lexical abilities of SLI children has been transferred from nouns (Leonard 1998; Rice 1991) to verbs due to the generally recognized important role of verbs in language development (Tomasetto 1992). In contrast to nouns which refer to object-reference concepts (e.g. things, persons etc.), verbs refer to relational concepts and specify conceptual roles that provide a framework for the sentence’s organization, hence, their syntactic significance in children’s grammatical development (Pinker 1989; Tomasetto 1992). Investigations on verb acquisition by SLI children indicate that verbs seem to pose a specific learning challenge for them. More specifically, it was found that children with SLI used a greater number of uninflected verb forms and had a more limited verb diversity than age matched controls (Fletcher & Peters 1984). Furthermore, it has been shown that SLI children rely heavily on a small set of General All-Purpose (GAP) verbs to fill the verb functions (Rice & Bode 1993). These verbs are also referred to as light verbs (Grimshaw & Mester 1988; Pinker 1989). It has been suggested that the verbs make, be, bring, take, get and give are full-fledged verbs from a syntactic viewpoint, but semantically they are less filling, as they have no specific meaning (Pinker 1989:171). The overuse of GAP verbs by English SLI children is attributed to their frequency, to their simple phonetic form and to their syntactic/semantic non-specificity (Rice & Bode 1993). Another study on verb use in SLI indicated that SLI children used fewer verbs and fewer different verbs than MLU-matched peers but the proportion of GAP verbs to the overall number of verbs produced by children with SLI was similar to that in MLU-controls (Conti-Ramsdem & Jones 1997).

The aim of this study is to shed light on the verb lexicon of 4 Greek SLI children compared to their chronological age controls. Based on experimental data from production and comprehension tasks, it is shown that (i) SLI children’s problems with verb production can be attributed to difficulties in verb retrieval, i.e., the target verb for some reason is not accessible, (ii) Greek SLI children use a significantly less diverse verb lexicon than their age peers.
controls as English SLI children and (iii) they are also based on a small set of light verbs including κάνω/kano ('to do/to make'), πάω/pao ('to go') and είµαι/ime ('to be') to a greater extent than the control group. More specifically, SLI children are found to produce non-adult forms of Light Verb Constructions (LVCs), which nevertheless are in accordance with the relevant rules for LVCs formation in adult Greek, as indicated by the analysis of those constructions produced by SLI children. It is argued that SLI children are extensively dependent on the rules that underlie the LVCs formation in Modern Greek to compensate for their verb-retrieval difficulties.

2. Method

2.1 Subjects

Two subject groups participated in this study: The group of 4 SLI children and one group of normally developing children. The former were diagnosed with SLI at the following Diagnostic Units of Child Centers in Greece: Special Diagnostic Unit of the Doxiadis Institute for Child Research in Athens, Medical-educational Center of North Greece in Thessaloniki and KAAMEA in Serres. The nonverbal abilities of all SLI children had previously been assessed by psychologists and fell within the normal range. In particular, SLI children’s nonverbal IQ performance was measured on WPPSI or WISC-III, provided that their chronological age was below or above 6:5 respectively. SLI children also met all other exclusion criteria set in the literature (Stark & Tallal 1981; Clahsen 1989, 1991; Gopnik & Crago 1991). More specifically, they had normal hearing acuity, absence of otitis media history, neurological impairment, or psycho-emotional disorders. Due to the absence of a standardised language age test in Greek, children’s linguistic abilities were assessed on production and comprehension language tests that have been translated from English to Greek and were adapted to Greek by the diagnostic teams at the above units. These tests were the Pre-school Language Scale (PLS) (Zimmerman et al. 1979) and the Clinical Evaluation of Language Fundamentals-Preschool (CELF-PRESCHOOL) (Wiig et al. 1992). Two SLI children’s (Akis and Despina) receptive and expressive language abilities were measured on PLS whilst those of the other two on CELF-PRESCHOOL. All children performed below par on the language tests administered by the speech therapists. The SLI children’s overall mean receptive language age was 3:7 (SD: 0.1291) while their overall mean
expressive language age was 2:8 (SD: 0.1291). One of the SLI children of this study (Agni) was also found to perform below chance on a number of linguistic tasks, such as a Greek SLI screening test, a plural formation task, a compound formation task and a diminutive formation task (Dalalakis, 1996). All SLI children had been receiving language therapy services during the experiments. The overall SLI children’s profile is presented in Table 1.

Table 1. SLI children’s profile

<table>
<thead>
<tr>
<th>Name</th>
<th>Chronological age</th>
<th>Gender</th>
<th>Non verbal IQ</th>
<th>Receptive verbal age</th>
<th>Expressive verbal age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marios</td>
<td>7</td>
<td>Male</td>
<td>116</td>
<td>3:9</td>
<td>3</td>
</tr>
<tr>
<td>Agni</td>
<td>6:4</td>
<td>Female</td>
<td>112</td>
<td>3:8</td>
<td>2:8</td>
</tr>
<tr>
<td>Despina</td>
<td>6:2</td>
<td>Female</td>
<td>89</td>
<td>3:7</td>
<td>2:9</td>
</tr>
<tr>
<td>Akis</td>
<td>5:1</td>
<td>Male</td>
<td>105</td>
<td>3:6</td>
<td>2:7</td>
</tr>
</tbody>
</table>

Each SLI child was matched to 3 normally developing children on the basis of both chronological age (+/− 4 months) and gender. The SLI group consisted of 2 male and 2 female subjects and thus the Age-matched (AM) control group consisted of 6 male and 6 female subjects. Normally developing children were selected from one infant school and one state primary school in Thessaloniki. There was no symptom of cognitive or linguistic problems either as reported in the children’s files at schools or evidenced from their performance elsewhere. The SLI children’s age ranged between 5:1 (years: months) and 7 years (Mean: 6.1, SD: .793) while that of the AM controls was from 5:3 to 6:9 (Mean: 6.1, SD: .7483).

2.2 Design and materials

39 coloured pictures were used in the experiments. They were selected from 45 pictures, after a pilot study with 10 Greek adults. Pictures that could not be appropriately described by using a verb were not included in the experiments. Samples of the pictures are presented below.
2.3 Procedure

The method used in the first experiment was the picture description task. In this task, children are expected to produce a target-verb and so their responses are easy to assess with respect to the target. In this way, it could also be checked whether the target verb was easily accessible or not. Consider Appendix 1 where the target verbs for the pictures are presented.

All children were tested individually. They were visually shown 39 pictures and were required to respond orally describing the activity depicted in the pictures. More specifically, they had to respond to the question 'what is going on in this picture?' asked by the researcher. All children were advised to describe the pictures as fast as they could. The children were expected to produce verbs to describe the pictures appropriately. The subjects' responses were recorded using a tape recorder, transcribed and analyzed. The response time of the children with SLI in this task was compared to that of the Age-matched (AM) controls.
We should note that the response time was considered to be the interval between the question ‘what is going on in this picture’ and the final verb response and measured by using a chronometer at the time of data transcription. Since a chronometer could distract children’s attention from the task and/or put pressure on them, its use was avoided at the time of the experiment.

As far as the first experiment is concerned, it is noteworthy that SLI children had to be encouraged to produce verbs. In (1c) a typical example of an SLI child’s response is presented. Label (a)\(^3\) is conventionally used to refer to the description of the picture, label (b) to the target utterance, while label (c) refers to the child’s utterance.\(^4\)

\[(1)\]
\[\text{a. There are some turtles that are swimming in a lake.} \]
\[\text{b. Oι χελώνες κολυμπούν.} \]
\[\text{the turtle-nom-pl swim-3pl.} \]
\[\text{‘The turtles are swimming.’} \]
\[\text{c. Είναι χελώνες.} \]
\[\text{be-3pl turtle-nom-pl.} \]
\[\text{‘They are turtles.’} \]

Researcher: Τι γίνεται στην εικόνα; \(\text{ti jinete stin ikona?} \)
\[\text{‘What’s going on in the picture?’} \]

SLI child: Κάνουνε… παίζουνε \(\text{kanune… pezune} \)
\[\text{do-3pl… play-3pl} \]
\[\text{‘They are doing … they are playing’} \]

The dots between the words in the example above indicate long pauses in SLI children’s speech. As shown in example (1c) there was an incorrect attempt (κάνουνε/kanune) before the final response (παίζουνε/pezune). The above strategy is widely used by SLI children: they made some incorrect attempts before their final correct or incorrect response. As a result, the number of verbs produced is larger than that of the pictures. This was also the case for normally developing children because they often used more than one verb to describe the picture. Consider the example below:

\[(2)\]
\[\text{a. Some happy children are photographed by a man.} \]
In the second experiment, a picture-pointing task was used to investigate whether the target verbs were present in children's mental lexicon. As in the first experiment, the same stimuli were used. The children were presented four pictures and were read a sentence that clearly corresponded with one of the pictures; they were then required to touch the picture that matched the sentence heard by saying 'this one'. In the few cases in which children forgot to say 'this one', the researcher did. The children in both groups were advised to respond as fast as they could. Response times were calculated again for both groups. We should stress here that the response time was considered to be the interval between the sentence read by the researcher and the 'this one' utterance said by the children or the researcher. Again, a chronometer was used at the time of data transcription.

2.4 Scoring

SLI children's responses to pictures description task fall into the following two groups: correct and incorrect ones. Correct responses (c) are the target ones (adult use). Look at the example below:

(3) a. The woman and the man are kissing each other
b. H γυναίκα και ο άνδρας φιλούνται.
   i jineka ke o anfiras filjunde
   the woman-nom and the man-nom kiss-3pl-mp
   'The woman and man are kissing each other.'
c. *Βέπω, φιλάνε το τόµα τους και µια γυναίκα και
*vepo filane to toma tus ke mia jineka ke
see-1SG kiss-3PL the mouth their-ACC and one woman-NOM and
ένας άνδρας.
enas adas
one man-NOM
'I see, they kiss their mouth both the woman and the man.'

It should be noticed that morphosyntactic errors are ignored in this analysis.
Therefore, although there is a voice error (φιλάνε/filane instead of φιλιούνται/ofiljunde) in (3c), the response is taken to be correct.

In incorrect responses the following categories were included:

(i) Lightverbs (LVs) instead of the target verb: lightverbs in MG are considered to be the following:6 κάνω/kano (‘to do/to make’), πάω/pao (‘to go’), είµαι/ime (‘to be’), δίνω/dino (‘to give’), παίρνω/perno (‘to take’), βάζω/vazo (‘to put’), βγάζω/vazo (‘to take out’) (Moustaki 1998; Nakas 1987; Stavrakaki 1998, 1999; Tsolaki 1999). Consider the example below:

4. a. Mum is putting food on the dishes on the table and the children are sitting around it.
   b. Η µαµά σερβίρει φαγητό στα παιδία.
   i mama serviri fajito sta peja
   'Mum is serving food to the children.'
   c. Κάνει φαγητό.
   kani fajito (LV)
   make-3SG food
   'She is making food.'7

(ii) Semantically related verbs (SRVs): verbs that are very closely related to the meaning of the target verb.

5. a. It is snowing
   b. Χιονίζει
   xjonizi
   snow-3SG
   'It is snowing.'
   c. Βέχει
   vexi (SRV)
   rain-3SG
   'It is raining.'
(iii) Verbs corresponding to a part of the picture (PPVs): verbs describing part of the activity depicted in the picture, but not the main one.

(6) a. Daddy is sitting on the sofa and reading a book to the children around him.
b. Ο μπαβάς διαβάζει ιστορίες στα παιδιά του.
   'Daddy is reading stories to the children'
c. *Κάθουνε
   *καθονε
   *sit-3pl
   'They are sitting' (PPV)

(iv) Inferentially derived verbs (IDVs): verbs corresponding to an activity that can possibly follow the one presented in the picture.

(7) a. Some children are around the table and taking their breakfast.
b. Τα παιδιά τρώνε πρωινό.
   'The children are eating their breakfast.'
c. *Ένα αγόλακι, δύο κολιτσάκια, α πάνε το κολείο
   *ενα αγολaki, δio kolitsaki, a pane to kolio
   'One little boy, two little girls will go to their school and then they go to their school' (IDV)

(v) Verb omission (VO): only nouns produced to describe the picture.

(8) a. A woman and a man are kissing each other.
b. Η γυναίκα και ο άνδρας φιλούνται.
   'The woman and man are kissing each other.'
c. Ατοί … φιλάκι
   ati … filaki (VO)
   'They… small kiss'
(vi) Not related to the target/Don’t know/No response.

(9) a. Mum and the child are standing near the door while daddy is outside the house and is greeting them.

b. Ο μπαμάς χαιρετάει τη μαμά και το παιδί.
the daddy-nom greet-3sg the mum-acc and the child-acc
‘Daddy is greeting the mum and the child.’

c. Βακείες είναι
vakies ine (NRT)
‘Nonsense’

The responses given by normally developing children have also been classified as correct and incorrect ones. The latter include the following categories: light verb, semantically related verb, verb corresponding to the part of a picture and inferentially derived response.

3. Results

Bearing the above error-coding scheme into mind, consider the frequency and percentage of correct and incorrect responses out of the total number of final responses produced by both groups. The results are depicted in Table 2 and 3 for AM controls and SLI children respectively.

<table>
<thead>
<tr>
<th></th>
<th>Correct</th>
<th>Incorrect</th>
</tr>
</thead>
<tbody>
<tr>
<td>LVs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SRVs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PPVs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IDVs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NRT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agni</td>
<td>(10) 25.6%</td>
<td>(6) 15.4%</td>
</tr>
<tr>
<td>Marios</td>
<td>(2) 5.13%</td>
<td>(1) 2.56%</td>
</tr>
<tr>
<td>Despina</td>
<td>(11) 28%</td>
<td>(9) 23%</td>
</tr>
<tr>
<td>Akis</td>
<td>(17) 43.6%</td>
<td>(4) 10.3%</td>
</tr>
<tr>
<td>Totals</td>
<td>40/156</td>
<td>20/156</td>
</tr>
<tr>
<td></td>
<td>25.6%</td>
<td>12.8%</td>
</tr>
</tbody>
</table>

As indicated by their high error rate, SLI children have difficulties in verb production, whereas AM controls exhibit high level of correct performance. An
Verb lexicons in SLI

Table 2. AM controls: the correct performance on verb production (final response)

<table>
<thead>
<tr>
<th>Correct</th>
<th>Incorrect</th>
</tr>
</thead>
<tbody>
<tr>
<td>LVs</td>
<td>SRVs</td>
</tr>
<tr>
<td>Anna</td>
<td>34 (87.2%)</td>
</tr>
<tr>
<td>Eleni</td>
<td>36 (92.3%)</td>
</tr>
<tr>
<td>Vagelitsa</td>
<td>35 (89.7%)</td>
</tr>
<tr>
<td>Dimitris K.</td>
<td>35 (89.7%)</td>
</tr>
<tr>
<td>Kostas</td>
<td>36 (92.3%)</td>
</tr>
<tr>
<td>Tasos</td>
<td>34 (87.2%)</td>
</tr>
<tr>
<td>Anastasia</td>
<td>33 (84.6%)</td>
</tr>
<tr>
<td>Keti</td>
<td>35 (89.7%)</td>
</tr>
<tr>
<td>Maria</td>
<td>36 (92.3%)</td>
</tr>
<tr>
<td>Milos</td>
<td>36 (92.3%)</td>
</tr>
<tr>
<td>Janis</td>
<td>34 (87.2%)</td>
</tr>
<tr>
<td>Dimitris M.</td>
<td>36 (92.3%)</td>
</tr>
<tr>
<td>Totals</td>
<td>420 (89.7%)</td>
</tr>
</tbody>
</table>

An independent-sample T test carried out indicated that SLI children perform significantly below AM controls on the verb production task \( [t(3.057) = -8.083, p = .004]^{10} \).

Next we should consider the performance of both groups on the lexical comprehension task. The correct/incorrect responses of SLI children are presented in Table 4.

Table 4. SLI children: Correct and Incorrect Responses to the verb comprehension task

<table>
<thead>
<tr>
<th>SLI children</th>
<th>Correct</th>
<th>Incorrect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agni</td>
<td>35/39</td>
<td>4/39</td>
</tr>
<tr>
<td>Marios</td>
<td>39/39</td>
<td>0/39</td>
</tr>
<tr>
<td>Despina</td>
<td>35/39</td>
<td>4/39</td>
</tr>
<tr>
<td>Akis</td>
<td>37/39</td>
<td>2/39</td>
</tr>
<tr>
<td>Totals</td>
<td>146 (93.6%)</td>
<td>10 (6.4%)</td>
</tr>
</tbody>
</table>

Notice that AM controls responded correctly in 100% in this task. Statistical analysis indicated that SLI children's performance on lexical comprehension task was not significantly different from that of their chronological age peers \( [t(3) = -2.611, p = .080] \).
In both experiments, the response times to verb production and picture pointing task were calculated. SLI children were proved to be late retrievals compared to AM controls. Compare the groups’ performance on response times to verb production and comprehension in Tables 5 and 6.

Table 5. AM controls’ response times to verb production and comprehension task

<table>
<thead>
<tr>
<th>Name</th>
<th>Response times to verb production</th>
<th>Response times to verb comprehension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anna</td>
<td>4.9 sec</td>
<td>1.43 sec</td>
</tr>
<tr>
<td>Eleni</td>
<td>4.5</td>
<td>1.23</td>
</tr>
<tr>
<td>Vagelitsa</td>
<td>6.5</td>
<td>1.32</td>
</tr>
<tr>
<td>Dimitris K.</td>
<td>6.6</td>
<td>1.41</td>
</tr>
<tr>
<td>Kostas</td>
<td>4.8</td>
<td>1.21</td>
</tr>
<tr>
<td>Tasos</td>
<td>5.5</td>
<td>1.43</td>
</tr>
<tr>
<td>Anastasia</td>
<td>4.5</td>
<td>1.32</td>
</tr>
<tr>
<td>Keti</td>
<td>5.7</td>
<td>1.1</td>
</tr>
<tr>
<td>Maria</td>
<td>6.7</td>
<td>1.47</td>
</tr>
<tr>
<td>Miltos</td>
<td>5</td>
<td>1.23</td>
</tr>
<tr>
<td>Janis</td>
<td>4.3</td>
<td>1.3</td>
</tr>
<tr>
<td>Dimitris M.</td>
<td>6.8</td>
<td>1.4</td>
</tr>
<tr>
<td>Mean</td>
<td>5.5</td>
<td>1.32</td>
</tr>
</tbody>
</table>

Table 6. SLI children’s response times to verb production and comprehension task

<table>
<thead>
<tr>
<th>Name</th>
<th>Response times to verb production</th>
<th>Response times to verb comprehension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agni</td>
<td>18.23 sec</td>
<td>2.93 sec</td>
</tr>
<tr>
<td>Marios</td>
<td>30.8</td>
<td>2.1</td>
</tr>
<tr>
<td>Despina</td>
<td>29.896</td>
<td>3.824</td>
</tr>
<tr>
<td>Akis</td>
<td>23.42</td>
<td>8.04</td>
</tr>
<tr>
<td>Mean</td>
<td>25.6</td>
<td>4.22</td>
</tr>
</tbody>
</table>

Statistical analysis showed that SLI children exhibited significantly different performance than that of their age-matched counterparts on response times to verb production \([t(3.052) = 6.780, p = .006]\) but the two groups were found to perform similarly on response times to verb comprehension \([t(3.004) = 2.198, p = .115]\). We should note that the mean response time of SLI children in the picture pointing task as shown in Table 6 is rather misleading due to the fact that just one SLI child was too late in his responses. He was the youngest child in the group and has been receiving language therapy services for just 3 months.
Let us now move to Tables 7 and 8 which show the results for the children’s total number of lexical and light verbs used (TNV) and total number of the different verbs (TDV); the latter constitutes a measure of lexical diversity.

**Table 7.** AM controls: The total number of lexical and light verbs used (TNV) vs. the total number of the different verbs (TDV)

<table>
<thead>
<tr>
<th></th>
<th>TNV</th>
<th>TDV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anna</td>
<td>65</td>
<td>44</td>
</tr>
<tr>
<td>Eleni</td>
<td>53</td>
<td>40</td>
</tr>
<tr>
<td>Vagelitsa</td>
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<td>39</td>
</tr>
<tr>
<td>Dimitris K.</td>
<td>58</td>
<td>40</td>
</tr>
<tr>
<td>Kostas</td>
<td>60</td>
<td>48</td>
</tr>
<tr>
<td>Tasos</td>
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<tr>
<td>Anastasia</td>
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<td>Keti</td>
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<td>42</td>
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<tr>
<td>Maria</td>
<td>61</td>
<td>49</td>
</tr>
<tr>
<td>Miltos</td>
<td>55</td>
<td>37</td>
</tr>
<tr>
<td>Janis</td>
<td>57</td>
<td>39</td>
</tr>
<tr>
<td>Dimitris M.</td>
<td>59</td>
<td>42</td>
</tr>
<tr>
<td>Totals</td>
<td>696</td>
<td>502</td>
</tr>
</tbody>
</table>

**Table 8.** SLI children: The total number of lexical and light verbs used (TNV) vs. the total number of the different verbs (TDV)

<table>
<thead>
<tr>
<th></th>
<th>TNV</th>
<th>TDV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agni</td>
<td>55</td>
<td>18</td>
</tr>
<tr>
<td>Marios</td>
<td>36</td>
<td>8</td>
</tr>
<tr>
<td>Despina</td>
<td>61</td>
<td>18</td>
</tr>
<tr>
<td>Akis</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>Totals</td>
<td>252</td>
<td>64</td>
</tr>
</tbody>
</table>

Recall that the total number of the verbs that were produced is more than the pictures. This is due to the fact that AM controls often produced more than one verb to describe the picture and SLI children made more than one attempt in order to find the appropriate verb. SLI children used significantly fewer different verbs than AM controls \[t(14) = -10.638, p < .001\] but produced a similar number of total verbs (TNV) with that of their chronological age peers \[t(3.028) = .371, p = .735\].

Further analysis that has been conducted on the verbs used by the groups indicates that SLI children rely more on LVs than AM controls. Consider the
proportion of LVs out of the total number of verbs produced by AM controls and SLI children as presented in Tables 9 and 10 respectively.

Table 9. The proportion of LVs out of the total verb production in AM controls

<table>
<thead>
<tr>
<th>Main verbs</th>
<th>Light verbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anna</td>
<td>57/65</td>
</tr>
<tr>
<td>Eleni</td>
<td>41/53</td>
</tr>
<tr>
<td>Vagelitsa</td>
<td>43/55</td>
</tr>
<tr>
<td>Dimitris K.</td>
<td>44/58</td>
</tr>
<tr>
<td>Kostas</td>
<td>47/60</td>
</tr>
<tr>
<td>Tasos</td>
<td>48/59</td>
</tr>
<tr>
<td>Anastasia</td>
<td>44/56</td>
</tr>
<tr>
<td>Keti</td>
<td>45/58</td>
</tr>
<tr>
<td>Maria</td>
<td>50/61</td>
</tr>
<tr>
<td>Miltos</td>
<td>45/55</td>
</tr>
<tr>
<td>Janis</td>
<td>44/57</td>
</tr>
<tr>
<td>Dimitris M.</td>
<td>46/59</td>
</tr>
<tr>
<td>Totals</td>
<td>554/696</td>
</tr>
<tr>
<td></td>
<td>(79.6%)</td>
</tr>
</tbody>
</table>

Table 10. The proportion of LVs out of the total verb production in SLI children

<table>
<thead>
<tr>
<th>Main verbs</th>
<th>Light verbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agni</td>
<td>33/55</td>
</tr>
<tr>
<td>Marios</td>
<td>21/36</td>
</tr>
<tr>
<td>Despina</td>
<td>29/61</td>
</tr>
<tr>
<td>Akis</td>
<td>67/100</td>
</tr>
<tr>
<td>Totals</td>
<td>150/252 (59.5%)</td>
</tr>
<tr>
<td></td>
<td>102/252 (40.5%)</td>
</tr>
</tbody>
</table>

Statistical analysis indicated that SLI children used significantly more light verbs than their age peers \( t(14) = 7.840, p < .001 \).

Let us focus on light verbs now: More detailed analysis on light verbs in AM controls and SLI children showed that the former used a more diverse light verbs’ lexicon than the latter. The results are depicted in Tables 11 & 12.

As we can see in Table 12 only three light verbs (\textit{kano} ‘to do’/ ‘to make’, \textit{pao} ‘to go’, \textit{ime} ‘to be’) were attested in SLI data, whereas AM controls used a more diverse light verbs’ lexicon than SLI children did, as shown by Table 11. More specifically, except for \textit{kano}, \textit{pao} and \textit{ime}, the light verbs \textit{δινω} ‘to give’, \textit{περνω} ‘to take’ and \textit{νιγαζω} ‘to take out’ were employed by AM controls. Sometimes SLI
Verb lexicons in SLI

children used an incorrect light verb instead of a correct one as example (10) below shows:

(10) a. Some happy children are photographed by a man.

b. Τα παιδιά βγαίνουν φωτογραφία.
   the children NOM get.out-3PL photo-ACC
   'The children are photographed.'

c. Τα κάνουν
   ia kanun
   photo do-3PL
   'They are doing a photo.'
As Tables 11 and 12 indicate, *ime* appears to be the most frequent verb in both SLI and ND children. Notice that 90/93 (96.77%) occurrences of *ime* in AM controls as well as 33/45 (73.33%) occurrences of it in SLI data consist of existential uses. Consider the example below where the use of existential *ime* by an SLI child as well as by a normally developing child is presented in (11-i) and (11-ii) respectively:

(11) (i) a. There are some turtles that are swimming in a lake.
   b. Οι χελώνες κολυμπούν.
      i xelones kolimbun
      ‘The turtles are swimming.’
   c. *Είναι ένα χελώνα. 
      *ine ena xelona (SLI child)
      ‘There is one turtle.’

(ii) a. There are some turtles that are swimming in a lake.
   b. Οι χελώνες κολυμπούν.
      i xelones kolimbun
      ‘The turtles are swimming.’
   c. Είναι δύο χελώνες που κολυμπούν.
      ine dio xelones pu kolimbun (ND child)
      ‘There are two turtles that are swimming.’

As far as the verb *kano* is concerned, it is worth noting that SLI children tend to produce considerably more forms of *kano* than AM controls do. Interestingly, it was noticed that the overwhelming majority of LVCs with *kano* in SLI data did not constitute adult uses of it, in the sense that they were not attested in adult Greek. Thus, further analysis was conducted to investigate whether the light verbs produced by the groups constituted adult uses or not. As far as the AM controls are concerned, notice that just one non-adult use of a light verb was attested:

(12) a. A child is looking at a mouse and screaming from fear.
   b. Το παιδί τρόμαξε από το ποντίκι.
      to peði tromakse apo to pondiki
      ‘The child was frightened by the mouse.’
Verb lexicons in SLI

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Kánει éτσι α!
kani etsi a!
do-3SG so ADV
‘He does like that oh!'

In Table 13 below the adult and non-adult uses of kano, pao and ime in SLI data are presented.

Table 13. LVCs in SLI children: adult vs. non-adult use

<table>
<thead>
<tr>
<th></th>
<th>Kano</th>
<th>Pao</th>
<th>Ime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult use</td>
<td>Non adult use</td>
<td>Adult use</td>
<td>Non adult use</td>
</tr>
<tr>
<td>Agni</td>
<td>2</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Marios</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Despina</td>
<td>1</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Akis</td>
<td>3</td>
<td>17</td>
<td>1</td>
</tr>
<tr>
<td>Totals</td>
<td>7/39</td>
<td>32/39</td>
<td>10/18</td>
</tr>
<tr>
<td></td>
<td>17.9%</td>
<td>82.1%</td>
<td>55.5%</td>
</tr>
</tbody>
</table>

As shown in Table 13 above kano is significantly more likely to participate in non-adult constructions than pao and ime.

After detailed investigation, it was found that there were two types of non-adult uses of kano in SLI data. In the first type, kano appears before an agentive predicate, as it is depicted in example (13):

(13) a. Some birds are flying
b. Τα πουλιά πετούν.
ta pulia petun
the bird-nom-pl fly-3pl
‘The birds are flying.’
c. Κάνουνε, κάνουνε ... πετάνε
kanune kanune petane
do-3pl do-3pl ... fly-3pl
‘They are doing, doing ... flying’

17 such occurrences of kano were attested. For just one time, the light verb kano was used instead of a fully specified verb but there was not another verb following it:
In the second type of the non-adult use of *kano*, it was accompanied by a complement (either a noun or an adverb) forming a neologism. 14 such instances of *kano* were found. Consider first the case where the complement is a noun. The noun can be an argument, in the sense that it is theta-marked by the verb, or a non-argument as in the examples (15) & (16) respectively:

(15) a. A chicken is knitting the sock
    b. Η κότα πλέκει την κάλτσα.
       i kota pleki tin kaltsa
       'The chicken is knitting the sock.'
    c. Τη κάτα κάνει.
       ti kata kani
       'She is doing the sock.'

(16) a. Some girls are dancing
    b. Τα κορίτσια χορεύουν.
       ta koritsia xorevun
       'The girls are dancing.'
    c. Κάνουν χολό.
       kanun xolo
       'They are doing dance.'

Note that the utterances above, ‘τη κάτα κάνει/ti kata kani’ and ‘κάνουν χολό/kanun xolo’ in (15c) and (16c) respectively, are instances of overgeneralisation, in the sense that they are used in adult Greek in the conventional meanings ‘I mend the sock’ for ‘kano tin kaltsa’, and ‘I am taking dance lessons’ for ‘kano xoro’. SLI children just employ existent structures to express innovative
meaning. Consider now the cases where *kano* is accompanied by an adverb. One adverb was attested: the non-specific adverb *έτσι*/*etsi* ('so'). Look at the example below.

(17) a. There are some turtles that are swimming in a lake.
   b. Οι χελώνες κολυμπούν.
      the turtle-*nom-pl* swim-*3pl*.
      'The turtles are swimming'
   c. Έτι κάνουν έτι.
      eti kanun eti
      so do-*3pl* so
      'Like that they are doing like that'

*Étsi* is a non-specific adverb, which is contextually defined. The SLI children's utterances are accompanied by the appropriate gestures contributing to the interpretation of the structure. For example, the relevant gesture in the utterance in (17) depicts the movement of swimming.

Consider now the non-adult uses of *pao*. Similar to *kano*, *pao* was accompanied by the non-specific adverb *etsi*. Four such occurrences were attested. This use is indicated by example (18).

(18) a. There are some turtles that are swimming in a lake.
   b. Οι χελώνες κολυμπούν.
      the turtle-*nom-pl* swim-*3pl*.
      'The turtles are swimming.'
   c. Πάνε έτι.
      pane eti
      go-*3pl* so
      'They are going like that.'

The appropriate gestures were used again to clarify the meaning of *etsi*. The remaining non-adult uses of *pao* (4 occurrences) indicated the word-finding problem of SLI children. Consider the example below:

(19) a. Two hunters are behind a bush and watching a lion.
   b. Οι κυνηγοί παρακολουθούν το λιοντάρι.
      the hunter-*nom-pl* watch-*3pl* the lion-*acc*.
      'The hunters are watching the lion.'
c. *Εδώ… ένα ένα ένα… δύο κυλίους μεγάλους α πάνε… ωχ!  
edo ena ena ena dio kilius megalus a pane ox  
here one one one two man-pl big-pl part go-3pl oh  
tipota  
nothing  
‘Here… one one one… two big men will go… oh! nothing’

In this case neither the verb nor its complement can be found.

Also, the deviant uses of *ime underline the word finding problem in SLI children. Consider the example (20) in which neither the target verb (travel) nor the target noun (ship) can be accessed.

(20) a. The child is travelling on a ship.  
b. Το παιδί ταξιδεύει με το καράβι.  
to peidi taksidavi me to karavi  
the child-nom travel-3sg with the ship  
‘The child is travelling on a ship.’

c. *Είναι… πηγαίνει θάλασσα  
ine pijeni thalasa  
be-3sg go-3sg sea  
‘He is… is going sea’

4. Discussion

Across two tasks, SLI children’s ability to produce and comprehend verbs was examined. They performed significantly below their age-matched counterparts on the verb production task while demonstrating the same level of performance on the verb comprehension task. Their different pattern of performance on verb production and comprehension is further confirmed by the fact that their response times to verb production were significantly higher than those of AM controls, whereas no significance in response times was found on the verb comprehension task. They were also found to use a less diverse verb lexicon than the controls, as indicated by the significance of the number of different verbs used by both groups. Moreover, they relied more heavily on light verbs than AM controls and in particular on *kano, *pao, and *ime. Also they almost exclusively made use of the non-adult forms of the light verbs.
We should first consider the error types produced in the first task. All of them have been attested in normally developing children's responses except for (1) the omission of verbs and (2) the “Not related to the target” category (see Section 2.4). With respect to the latter, it is assumed that it is rather due to the difficulty that SLI children meet in verbal tasks and thus these children are not always so willing to co-operate in completing the tests. In other words, it seems that SLI children make laborious efforts to correspond to verbal tasks while no such efforts are required by normally developing children. This may mainly reflect the nature of the deficit in SLI, i.e. it is a linguistic deficit and thus affects aspects of language development. As far as the verb omission is concerned, notice that it was the main error type for one SLI child while also attested in all SLI children's data. This finding is consistent with those referred to in the literature (Watkins & Rice 1991) indicating that SLI children have the tendency to omit verbs. Regarding the verbs that correspond to a part of the picture, notice that in most of the cases they were used instead of thematically complex verbs, such as transitive verbs with one NP and one PP complement. With this kind of verb, a preposition is required by the verb's argument structure. More specifically, in the target responses the use of the preposition *se* (*to*) was required (see example 6). The fact that SLI children tended to produce simpler verbs corresponding to a part of the picture rather than the ditransitive ones seems to be related to their difficulties in producing complex syntactic structures. Concerning the preposition *se*, it is omitted even at relatively advanced stages of SLI children's linguistic development (Watkins & Rice 1991; Stavrakaki & Tsimpi 1999). This finding is compatible with the late emergence of the *to*-dative pattern compared with the double object pattern in English L1 acquisition as shown by production data (Pinker 1989; Snyder & Stromswold, 1994). Regarding the errors that are semantically related to the picture or those which have been characterised as inferentially derived responses, notice that both of them can be taken as indicative of SLI children’s word finding problem (cf. McGregor 1997). Consider first the semantically related errors. Such errors have been suggested to occur because of breakdowns at the level of lemma. The lemma is proposed to be part of the lexical entry; namely, it represents the meaning and the syntax of a given entry (Levelt 1989, 1991). As far the SLI children of this study are concerned, their semantic errors cannot be attributed to the non-availability of lemmata, since they do know the target verbs, as the picture pointing task showed. It is rather the case that SLI children tend to overextend the meaning of a particular word semantically related to the target, when the target is not accessible. Some of the target verbs that were not available at
the time of a particular utterance were used correctly in other utterances. This provides further support that the particular verbs were in the lexicon but were not immediately retrievable from the lexicon. Regarding the inferentially derived responses, they can be interpreted as instances of circumlocution. Frequent circumlocution was found to be a chief symptom of word-finding problems (Leonard 1998): SLI children trying to avoid describing a particular picture directly used verbs inferentially related to the target.

Another consideration should be the difference between the two groups in the response times to verb production. SLI children take longer to respond verbally to a picture than their peers. This is consistent with a number of studies that examine lexical abilities by using response times (Kail & Leonard 1986; Sininnger et al. 1989). The delayed speed of word retrieval can also be interpreted as an implication of the word-accessing problem. A similar interpretation can be given to the long pauses in SLI children's speech.

Let us now discuss the diversity of the language impaired children's verb lexicon relative to their age-matched counterparts. The proportion of light verbs out of the total verb production indicates that SLI children relied more on light verbs than on main ones. This was not the case for age-matched controls. Recall also that SLI children used a less diverse light verb lexicon than the control group. This finding indicates that SLI children are working with an extremely constrained set of verb resources to fill the verb functions (cf. Rice & Bode 1993; Watkins et al. 1993).

The question that arises here is whether SLI children's verb limitations can be attributed to impaired lexical representation. As the second experiment indicated, the high percentage of correct responses in comprehension task shows that SLI children do not lack the lexical entries of verbs, and particularly their lemmas in the sense of Levelt (1989, 1991). As mentioned before, lemmas consist of meaning and syntax. With respect to the former, note that it provides the conceptual specification for the verb, that is, the variables to which grammatical functions can be assigned. The latter specifies the item's syntactic category and its assignment of grammatical functions, that is, subject, direct/indirect object. It has been found that although SLI children use forward canonical linking (semantic to syntactic mapping) to assign thematic roles to syntactic functions of a novel verb, they appear to meet problems in using reverse canonical linking rules to assign thematic roles to syntactic functions of a novel verb (syntactic to semantic mapping) (van der Lely 1994). This may result in deficits in the storage of the verbs' lemmas at the level of syntax, but does not necessarily implicate absence of the lemma's representation at this level.
If SLI children lacked that level of representation of the lemma, then they would systematically produce errors in the assigning of grammatical functions. However, this has not been attested in SLI children’s spontaneous speech but only in cases where grammatical features (e.g. case) or functions (e.g. A-movement) are required for the interpretation of the sentence (Stavrakaki, to appear; in prep.). In this respect, the high incorrect percentages in verb production cannot be attributed to the absence of the lemma.

Apart from the lemma, lexical entries are proposed to have another part, the lexeme, which specifies the morphophonological form of the lexical entry. Recall that it is widely attested that SLI children have extraordinary limitations in grammatical morphology (for a review, see Leonard 1998). Perhaps the high rate of errors in verb production occurred because of deficiencies at the level of lexeme. Not being able to find the morphophonological form of a particular verb, SLI children produce incorrect responses. Therefore, the difficulties in main verb retrieval may be associated with the fact that the representation of diacritic variables in terms of Levelt (1989), that is, tense, mood, aspect, person, number is severely impaired. In other words, the morphosyntactic features of verbs “burden” the word-retrieval process. Therefore, it may be the case that the difficulties in accessing verbs are mainly related to their crucial morphosyntactic information rather than to a generally impaired lexical representation as shown by the verb comprehension task as well as by the fact that some verbs that could not be accessed at some time were used correctly at another time. When failing to access a main verb, SLI children relied very heavily on a small set of light verbs. These verbs seem to be easier to access than lexical ones for two main reasons.

The first one has to do with their frequency. This set of verbs is of high frequency in MG. Notice that frequency effects have been well documented in SLI literature. More specifically, it was found that the likelihood of SLI children producing a regular or irregular past tense verb in English, French and Japanese was dependent on the frequency of the existing past tense form (Gopnik & Goad 1997; Royle 1996). Therefore, the overuse of light verbs by SLI children can be taken to indicate frequency effects in word retrieval (cf. Rice & Bode 1993).

The second is related to their linguistic properties. As suggested in Stavrakaki (1998, 1999) these verbs constitute another class of verbs; they are neither main nor auxiliary verbs. On the one hand, lexical or main verbs have Lexical Conceptual Structure (LCS) and argument-structure (AS) (Grimshaw, 1990) and thus they can assign theta-roles to their arguments. Moreover, they carry Tense and Agreement features as a result of their categorial V status.
With respect to their representation in the mental lexicon, there is direct mapping of linguistic/morphological representation of a main verb onto a concept (Fodor, 1975). Auxiliary verbs on the other hand are used in periphrastic tense formation. Thus, they cannot stand on their own but co-occur with already fully-fledged predicates. Consequently, they lack theta-marking ability. However, auxiliaries are capable of carrying function features (agreement features) because they are verbal elements. Light verbs can stand on their own as main verbs do, but they are semantically underspecified in the sense that their linguistic representation does not exactly map onto a concept, unlike the case of main verbs. The class of light verbs is not homogeneous; all of them except for kano and ime have prototypical meaning and function as main verbs, whereas kano and ime lack prototypical meaning in the sense that they require a complement to be interpreted and thus their interpretation is the result of their combination with a complement. Consider now an example of a main verb which functions as light too: δίνω (‘to give’) has the prototypical meaning I give something to someone and functions as a main verb. However, when it has a deverbal nominal as a complement (e.g. προσοχή / prosoxi) and its meaning is supplied compositionally, it functions as a light verb:

(21) Δίνω προσοχή.
δίνω prosoxi
give-1sg attention
‘I pay attention to something.’

Turning back to SLI children’s data, it seems that when the target verb is not immediately retrievable from the lexicon, SLI children resort to verbs that are semantically underspecified and their meaning is largely dependent on their complement. Therefore, the role of the verb in this case is just to support the complement, while the meaning is conveyed by the complement. Consider the example below:

(22) a. Daddy and child embrace each other.
   b. Ο μπαμπάς και το παιδί αγκαλιάζονται.
      ο babas ke to peδi angaljazonde
      the daddy-nom and the child-nom embrace-3pl-MP
      ‘Daddy and child embrace.’
   c. Παιδάκι… μπαμπά
      peδakì baba
      little.child… daddy
Consider now the deviant uses of LVCs attested in SLI data. An interesting finding is that *kano* is the verb most often used in deviant LVCs. It seems that some features of the verb *kano* make it more likely for deviant uses than *pao* and *ime*. I would suggest that the productive use of *kano* in non-adult LVCs is due to its syntactico-semantic properties (Stavrakaki 1998, 1999). In particular, the non-adult use of *kano* by SLI children will be directly related to the linguistic properties of this verb in adult Greek. Firstly, there are some structures in MG where the interpretation of *kano* is contextually defined. Consider the example (23) below:

(23) Κάνω τo σπίτι.
    kano to spiti
    'I build the house.'
    'I clean the house.'

In the example above the light verb *kano* is an agentive transitive verb with theta-marking ability and its structural representation is similar to a main VP: [vp [v’ kano [DP to spiti] ]]. However, the difference with a main VP is that the structural representation of *kano* does not directly correspond to the concepts *χτίζω/xtizo* 'to build' or *καθαρίζω/katharizo* 'to clean'. The instruction that LF gives to further conceptual processes is limited to the meaning that 'someone does an activity upon an object.' The exact mapping of the linguistic representation of
kano onto the appropriate concept is a matter of pragmatics. Schematically, the structure in (22) follows the rule (i) for LVC formation in adult Greek:

(i) kano + nominal (argument) → someone does an activity upon an object: pragmatic recovery → mapping onto a concept

In this way, the structure kano + nominal (argument) gets more than one interpretation contextually defined. This flexibility in the interpretation of the verb kano seems to be exploited by SLI children who refer to some activities using not the target verb but the rule in (i). As shown in example (15), although the conventional meaning of the structure ‘kano tin kaltsa’ is ‘I am mending the sock’ in adult Greek, the SLI child makes use of the rule in (i) in order to describe the picture ‘the chicken is knitting the sock’. As a result, a neologism is formed, as an innovative meaning is attributed to an utterance with a conventional meaning.

Similarly, a neologism is produced by an SLI child in (16), where the utterance ‘kanun xoró’ is referred to a picture in which some girls are dancing. Note that ‘kanun xoró’ has the conventional meaning ‘I am taking dance lessons’ in MG. Let us explain now the potential sources of neologisms such as the one in (16). In adult Greek, kano is found in structures where a non-argument is used. Consider the example (24) below:

(24) a. Κάνω προσπάθεια.
    kano prospátheia
    do-1SG effort-ACC
    ‘I try’

It has been suggested (Stavrakaki 1999) that the deverbal nominal προσπάθεια/prospáthia cannot be theta-marked by the light verb kano. However, the deverbal noun carries argument structure (AS) (Grimshaw 1990; Markanontatou 1992), since it inherits it from its verb. Consider the example below:

(25) prospáthia (Ev (x(y))): an event such that x tries y.

As the deverbal noun cannot be theta-marked by the v kano, it adjoins to the light v kano forming a single predicate. What occurs is that the deverbal noun x is incorporated into kano at LF; as a result a Light Verb Construction (LVC) is formed. The LVC bears an AS inherited from the AS of the deverbal nominal. In this way, the linguistic representation of LVC at LF maps precisely onto a concept in the mental lexicon. Consider the rule (ii) for the mapping of the LVC onto a concept:
(ii) \( kano + \) deverbal nominal \((Ev(x(y))) \) \( \rightarrow \) complex predicate \((Ev(x(y))) \) at LF
\( \rightarrow \) mapping onto a concept which is nearly the same with that of the equivalent main verb

Therefore, the structure \( kano + \) deverbal nominal can be equivalent or nearly equivalent to a main verb but not all main verbs can be replaced by \( kano + \) non-argument. For example, \( \chiορεύω/\chiορεύω \) ('I dance') cannot be replaced by \( kano \ xoro \), because as mentioned before \( kano \ xoro \) means 'I am taking dance lessons' (see example 16). SLI children seem to apply the rule in (ii) even in the cases where this is not allowed. In other words, what they do is over-generalize the rule in (ii) and thus some neologisms are produced.

Consider now another adult use of the verb \( kano \) in which it is followed by an adverb as shown in example (26) below:

(26) Κάνε γρήγορα!
   kane γρήγορα
do-2sg fast-ADV
   'Hurry up!'

The mapping of the LVC in (26) onto a concept is provided by the rule below:

(iii) \( kano + \) adverb \( \rightarrow \) complex predicate at LF \( \rightarrow \) mapping onto a concept

Recall that in SLI data \( kano \) was accompanied by the dummy adverb \( etsi \), which was defined by SLI children’s gestures. Therefore, when SLI children did not have access to a lexical verb, they used gestures to convey meaning, since the use of the “dummy” \( kano \) and \( etsi \) was not sufficient for providing the target meaning. This finding is consistent with that of Fex & Manson (1998), who have analyzed the use of gestures by SLI children and adults with acquired aphasia. They have suggested that both groups use gestures to compensate for the missing access to the word. In their study, gestures referring to nouns were described. In the present study it was found that gestures could be used to express verbs, but they were accompanied by the support of the light \( kano \) and the adverb \( etsi \). This is also the case for \( pao + \) dummy adverb \( etsi \).

Finally, consider the adult use of \( kano \) in pseudo-cleft constructions and \( \text{wh-questions} \).

Look at the examples below:
(27) a. Αυτό που έκανε η Μαρία ήταν να φύγει
afó pu ekane i Maria itan na fiji
this-acc which do-3sg-past the Mary-nom was to leave-3sg-subj
αμέσως.
amesos
immediately
'What Mary did was to leave immediately.'

b. Τι έκανες χτες; Διάβαζα.
ti ekanes xtes? δjavaza
what-acc do-2sg-past yesterday? Read-1sg-past
'What did you do yesterday?' 'I was reading.'

It is indicated that κανό stands for a full VP predicate (it stands for φύγει αμέσως/fiji amesos in the case of (27a) and διάβαζα/δjavaza in (27b)), in the sense that it is replaced by the main VP. If the light verb κανό can stand for every agentive predicate, then it will be expected that when a main agentive predicate is not accessible, the less specific verb κανό can be easily accessed to replace it. In this way the use of κανό by SLI children before the main verb at the word retrieval process, as well as the replacement of a main verb by κανό can be explained. The former is indicated in example (13), while the latter in (14).

To sum up, it seems that the use of κανό in non-adult structures is compatible with the rules that underlie its use in adult Greek.

On the other hand, πάο and ίμε are not so frequent as κανό in non-adult LVCs in SLI data. This has to do with their properties in adult Greek. Firstly, they cannot stand for another predicate; however ίμε and πάο are produced before a main predicate at the word-finding process in our data, but the word, which was not found in this case, is a noun or a preposition rather than a verb (see examples (19) & (20)). The word-finding problem is indicated in this way. Furthermore, although both πάο and ίμε are involved in structures which are equivalent to a main verb in adult Greek, with respect to πάο these structures are few\(^\text{16}\) while with respect to ίμε this is allowed only in the structure ίμε + -menos\(^\text{17}\) participle.

Finally, it could be suggested that SLI children compensate for the "verb-finding" problems by relying on a limited verb lexicon and exploiting the rules for LVCs formation in adult Greek to convey the target meaning when the target verb is not accessible.
5. Conclusion

In this study, SLI children were found to meet particular limitations in verb production. Not only their overall correct performance was lower than that of their age-matched peers (final responses) but also less diversity was found in their verb lexicons, since they were largely based on the so-called light verbs, and particularly on *kano*, *pao* and *ime*. It is suggested that Greek SLI children try to compensate for their verb-retrieval difficulties by the extensive use of rules that underlie the LVCs formation in Modern Greek. On the other hand, SLI children performed at the same level with their age peers on the verb comprehension task. This finding was interpreted as indicative of impaired lexical retrieval but not of completely impaired lexical entries.

Notes

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2. Due to the fact that this work was initially intended for a part of a PhD thesis, just one rater participated in the transcription and analysis of the data.

3. Many thanks to an anonymous reviewer for suggesting how I should organise the examples.

4. Notice that sometimes children’s utterances constitute neologisms and so they are not attested in adult Greek.

5. In some cases more than one responses can be taken as target. For example, in this case the utterances ‘*viens fotografia*’ ‘they are photographed,’ ‘*fotografizonde*’ ‘they are photographed’ or ‘*o andras vyazi ta padi fotografia*’ ‘the man is taking a picture of the children’ were included in the target response.

6. The term *Light Verbs* was used by Stavrakaki (1998, 1999) to refer to particular verbs in MG on the basis of some criteria that are presented later on in this paper (see p.115). With the exception of Nakas (1987) who calls these verbs *verb-nominal, verb-adverbial periphrases*
as well as Moustaki (1998) and Tsolaki (1999) who treat these verbs as auxiliary ones, this class of verbs has not got much attention in discussions of Greek syntax. I must thank one editor for drawing my attention on this issue.

7. The conventional meaning of *kano fajito* in Greek is ’I am cooking’.

8. The ungrammatical is due to a voice error.

9. The structure is ungrammatical due to the use of -a instead of θa (’will’) and to the omission of the preposition se (’to’).

10. Independent samples T tests were carried out when the distribution was normal, as indicated by the Kolmogorov-Smirnov Test.

11. The ungrammaticality is due to an error in grammatical gender.

12. The utterance is ungrammatical due to the omission of the definite article before Mickey Mouse.

13. I must thank an anonymous reviewer for drawing my attention to whether the levels of lexical representations are intact or not.

14. An interesting issue is whether there are problems in noun retrieval since nouns are also heavily inflected in Greek, as pointed out by an anonymous reviewer. To the best of my knowledge, no study on the noun retrieval by Greek SLI children has been conducted. Based on the data of this study, which nevertheless focuses on verbs, it could be said that there are some problems in noun retrieval. Look at the example (20) in this paper. However, it seems that SLI children meet considerably more problems in verb rather than in noun retrieval. This is may be due to the following reasons. Firstly, Greek nouns are inflected for case, number and gender whereas Greek verbs for person, number, tense, aspect, voice and — to some extent — mood (Holton et al. 1997). Therefore, the Greek verb morphology is more complex than that of the noun. Secondly, learning concrete nouns is associated with the use of perceptual and social cues (Bloom & Markson 1998) whereas learning verbs, and particularly abstract verbs, with the use of structural-grammatical cues (Bloom & Markson, 1998; Gleitman 1990) in which children with SLI were found to be severely impaired (van der Lely 1994, 1999).

15. The reasoning behind this hypothesis is that although the activity features of *kano* in LCS require an agent/doer, LCS is not always projected into AS. This means that the situation type of *kano* (activity) is denoted at the level of Logical Form (LF), but the activity features are not reflected at the level of AS. As a consequence, the deverbal nominal cannot be theta-marked by the light verb *kano* and the implied agent cannot be syntactically expressed. Thus, there is neither theme nor agent at the AS level.

16. Look at the following example:

   pao xamenos = katastrefome ’I have destroyed myself’
   go-1sg lost-part

17. ime θimomenos = exo θimosi ’I have been angry’
   be-1sg angry-part
References


Stavrakaki, Stavroula. 1996. Specific Language Impairment in Greek: Evaluation of Person and Number Agreement, Case Assignment to Overt Subject Pronouns and Tense Marking. MA dissertation, University of Essex.


Appendix I: Target verbs for each picture

1. Οι χελώνες κολυμπούν
   'The turtles are swimming'
2. Τα πουλιά πετούν
   'The birds are flying'
3. Τα παιδιά γελάνε
   'The children are laughing'
4. Τα παιδιά γράφουν
   'The children are writing'
5. Τα παιδιά κοιμούνται
   'The children are sleeping'
6. Χιονίζει
   'It is snowing'
7. Τα κορίτσια χορεύουν
   'The girls are dancing'
8. Τα παιδιά ξυπνάνε
   'The children are waking up'
9. Τα παιδιά τρώνε το πρωϊνό τους
   'The children are eating their breakfast'
10. Το κορίτσι σκουπίζει το πάτο
    'The girl is drying the dish'
11. Τα κορίτσια ταιζούν τις πάπιες
    'The girls are feeding the ducks'
12. Η κότα πλέκει την κάλτσα
    'The chicken is knitting the sock'
13. Το μωρό πίνει γάλα
    'The baby is drinking milk'
14. Οι οικυνηγοί παρακολουθούν το λιοντάρι
    'The hunters are watching the lion'
15. Η γυναίκα και το παιδί παίζουν βιολί
   'The woman and the child are playing violin'

16. Τα παιδιά στολίζουν το Χριστουγεννιάτικο δέντρο
   'The children are decorating the Christmas tree'

17. Ένα παιδί λούζει ένα άλλο παιδί
   'A child is giving another child a shampoo'

18. Ένα σκύλο κυνηγάει ένα άλλο σκύλο
   'A dog is chasing another dog'

19. Τα παιδιά ζωγραφίζουν μια χελώνα
   'The children are drawing a turtle'

20. O μπαμπάς υποδέχεται τη μαμά και τα παιδιά
    o babas ipodekete ti mama ke ta peidia
    'Mum and children are being received by daddy'

21. Η μαμά κόβει ένα καρότο
    i mama kovi ena karoto
    'Mum is chopping up a carrot'

22. Το παιδί βουτιάει τα δόντια του
    to peidi vurtzi ta donja tu
    'The child is brushing his teeth'

23. Οι άνδρες κουβαλάνε ένα πιάνο
    i andres kuvalane ena piano
    'The men are carrying a piano'

24. O μπαμπάς χαρετά τη μαμά και το παιδί
    o babas xereta ti mama ke to peidi
    'Daddy is greeting mum and the child'

25. H μαμά σερβίρει φαγητό στα παιδιά
    i mama serviri fajito sta peidia
    'Mum is serving food to the children'

26. Τα παιδιά βγαίνουν φωτογραφία
    ta peidia vjenun fotografiia
    'The children are photographed'

27. Ο μπαμπάς διαβάζει ιστορίες στα παιδιά
    o babas diavazi istories sta peidia
    'Daddy is reading stories to the children'

28. Το παιδί δίνει στη γυναίκα το αρκουδάκι
    to peidi dini sti jineka to arkoudaki
    'The child is giving the woman the teddy bear'

29. Το παιδί τρόμαξε από το ποντίκι
    to peidi tromakse apo to pondiki
    'The child was frightened by the mouse'
30. Τα παιδιά γυμνάζονται
   ta peðia jimmazonde
   ‘The children are doing exercises’
31. Μια γυναίκα και ένας άνδρας φιλιούνται
   mia jineka ke enas anðras filjunde
   ‘A woman and a man are kissing each other’
32. Ο μπαμπάς και το παιδί αγκαλιάζονται
   o babas ke to peði angaljzone
   ‘Daddy and the child are embracing’
33. Τα παιδιά αλληλοσπρώχνονται
   ta peðia allisproxnonde
   ‘The children are pushing each other’
34. Το λιοντάρι παγιδεύτηκε
   to ljondari pajiδευτε
   ‘The lion has been trapped’
35. Τα παιδιά πάνε στο σχολείο
   ta peðia pane sto sxolio
   ‘The children are going to school’
36. O Nτόναλ τράκαρε το αυτοκίνητό του
   o donald trakare to aftokinito tu
   ‘Donald has crashed his car’
37. Το παιδί ταξίδευε με το καράβι
   to peði taksiδεvi me to karavi
   ‘The child is travelling on a ship’
38. Ο άνδρας κατεβαίνει από το λεωφορείο
   o anðras kateveni apo to leoforio
   ‘The man is getting off the bus’
39. Η γυναίκα μιλάει στο τηλέφωνο
   i jineka milai sto tilefono
   ‘The woman is speaking on the phone’

Περίληψη

Σκοπός της μελέτης αυτής είναι η διερεύνηση του ρητορικού λεξιλογίου σε παιδιά -φυσικούς ομιλητές της Νέας Ελληνικής- με Εξελικτική Δυσφασία (SLI) στη βάση πειραματικών δεδομένων από καθήκοντα παραγωγής και κατανόησης. Δύο ομάδες παιδιών συμμετείχαν στο πείραμα: μία ομάδα 4 παιδιών με Εξελικτική Δυσφασία και μία ομάδα ελέγχου παιδιών με φυσιολογική γλωσσική ανάπτυξη, η οποία συγκροτήθηκε με βάση το κριτήριο της χρονολογικής ηλικίας. Οπως δείχνει η ανάλυση των δεδομένων παραγωγής ρήματος, τα παιδιά με Εξελικτική Δυσφασία χρησιμοποιούν περιορισμένο ρητορικό λεξιλογίο, ένα μεγάλο μέρος του οποίου αποτελείται από σημασιολογικά υποπροσδιορισμένα ρήματα (light verbs), τα οποία χρησιμοποιούνται με τρόπο που δε συναντάται στη γλώσσα των ενήλικων. Παρά τις ολοφάνερες διαφορές μεταξύ των παιδιών με Εξελικτική Δυσφασία και των
παιδιών της ομάδας ελέγχου στην παραγωγή του ρήματος, υποστηρίζεται ότι το ρηματικό λεξιλόγιο των παιδιών με Εξελικτική Δυσφασία είναι συμβατό με τους κανόνες που διέπουν το σύστημα του ρηματοστουμένου στη Νέα Ελληνική. Με βάση τα δεδομένα κατανόησης, προτείνεται ότι τα προβλήματα των παιδιών με Εξελικτική Δυσφασία στην παραγωγή του ρήματος μπορούν να αποδοθούν σε δυσκολίες στην ανάκληση του ρήματος και όχι στην ύπαρξη λεξικών αναπαραστάσεων που έχουν υποστεί παντελή βλάβη.