Child comprehension of displaced constituents in L1 Greek

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Abstract

This paper examines the ability of young Greek children aged 3;0-6;6 to comprehend displaced constituents, namely wh-constructions, foci, CLLDs, relatives and passive morphology in L1 Greek. The prediction is that structures which do not involve any movement (e.g. adjectival passives and reflexives) will be comprehended earlier than movement structures.

In order to assess children’s syntax, 80 kindergarten children and 20 controls have served as subjects in taking a Truth-Value Judgment task, which includes the structures mentioned above. The empirical findings of the study show a developmental trend in syntactic comprehension, with between-structures differences.

Keywords: syntactic comprehension, displaced constituents, L1 acquisition, TVJ task

1. Theories of L1 acquisition (L1A)

The beginning of an infant’s life is not characterised by the linguistic capability of an adult. With the aid of some primary linguistic data (PLD) the child will make the transition from the initial state (So) of its linguistic knowledge to the steady state (Ss) of its ‘linguistic maturation’. Nevertheless, these data that the child receives are not sufficient to account for its final mastery, a fact that gives rise to the poverty of the stimulus problem: how is this final stage reached when so few data are available? (Chomsky 1986). The answer to this question is the assumption that some innate formal principles exist in the child’s brain from birth, constituting Universal Grammar (UG).
Language acquisition is the process of fixing parameters to the values of the target grammar. UG decides the number of values these parameters will have and the principles are the ones that define the nature of the grammar that will finally be developed. In the literature of language acquisition there is divergence only regarding the complete or incomplete availability of UG parameters throughout the acquisition process. The continuity hypothesis and the maturation hypothesis are the two major theories in the literature.

(a) Continuity hypothesis: It conforms to the Instantaneous Model of Acquisition (Chomsky 1986), according to which parameter setting is the learning process of matching syntactic features to the correct functional category. The continuity hypothesis claims that UG principles are available from the very beginning but parameters are not yet fixed to the correct value, having an unmarked, default value. Early data (acquisition stages before the setting of the parameters) can be accounted for by assuming this default parametric value, available in the absence of triggering data. When triggering data appear, they cause the switch to the right value and then parameter setting occurs.

Yet, it is questionable how and when data become triggering data, and if they are always present, which gives rise to the question of how learning takes place (Borer and Wexler 1987). Besides, some functional features already appear in the target value, leaving the question of triggering data open. These are some of the reasons why the maturation hypothesis gains some advantage over the continuity one.

(b) Maturation hypothesis: It conforms to the Innateness Hypothesis, which claims that language acquisition is a biological process, therefore subject to maturational constraints, like other aspects of anatomical and cognitive development.

Given that the data discussed in this study come from children of ages between 3;0-6;6, the issue of maturation of UG principles or functional categories does not arise. We are going to adopt Crain and Thornton's (1998) Modularity Matching Model, according to which children's grammars match adults', as they both share a common language processing system with the same processing capacity and memory limitations, and are aware of the grammatical principles governing their language; behaviour is consistent, even if not on a par, with that of adults. The human language-processing system is modular, in that the language faculty operates according to principles specific to it, not shared by other cognitive systems. This is why considerations about plausibility of sentences do not influence the grammatical representations constructed by them. Experience plays little role in linguistic performance; it is certain linguistic properties that make some sentences more difficult than others.
2. Displaced Constituents

In order to show that parameters are subject to maturation, I will consider displaced constituents involving A'-movement and no movement at all. Rizzi (1995) proposes the division of the CP, the interface level between IP and the subordinate structure, and claims that the left periphery consists of the Force-Finiteness system, with Force (Chomsky 1995) being responsible for the specification of the outside information and the type of sentence, occupying the higher position, and Fin, providing the inside data and mood/tense specifications as well as subject agreement, occupying the lower position:

(1) Force...(Topic)...(Focus)...Fin IP

2.1 A' movement

(a) Quantificational and non-quantificational operators

In all peripheral constructions (wh-constructions, focus, CLLDs and relative structures) an operator is involved. Operators can be quantificational, binding a true variable and having a functional reading, like interrogatives and RRCs.

A wh-operator unselectively binds all true wh-variables. The set of possible referents that a functional quantifier like a wh-phrase can have is restricted by the A'-chain.

RRCs also have a quantificational operator binding a true variable (Tsimpli 1999: 241-262). However, the restriction of the possible set of referents is now done by the 'subject' of predication, due to their referential index. These relative operators are linking operators since they must be co-indexed with a variable and an antecedent, the relative head (Lasnik and Stowell 1991: 687-720, Kayne 1994). The nature of the wh- and relative operator is shown below:

(2) (a) wh-Opi ......ti
    (b) Npi......Opi........ti

Foci and CLLDs, on the other hand, are non-quantificational operators that bind a null epithet/constant (Lasnik and Stowell 1991: 687-720) with non-anaphoric, non-pronominal and non-variable properties [-a, -p, -v]. They have individual readings and bind an individual variable.

(b) Syntactic analysis of A' displaced constituents

Although wh-constructions and foci are different kinds of operators, the common characteristic they both share is that they are governed by a similar criterion. In particular, wh-phrases are governed by the Wh-criterion (May
1985, Rizzi 1996), according to which a [+wh] Xo must be in spec-head agreement with a wh-operator (Tsimpli 1998), with wh-movement being a trace-binding relationship that takes place to satisfy the above criterion and supply C with the uninterpretable wh-feature, and foci are governed by the F-Criterion (Tsimpli 1995), where a [+F] Xo must be in Spec-Head agreement with an F operator. Parameterising the F-criterion with respect to level (Brody 1989: 226-255), the focus phrase is either obligatorily preposed in the syntactic level or moves at LF and remains in-situ. In Greek the focus phrase can either be preposed or remain in-situ but contrary to the wh-morpheme, the F morpheme is never overtly realised in Greek.

Concerning relatives, Chomsky (1995) claims that relative heads are CP-adjoined to the head noun. The wh-word in SpecCP is related to an internal position and wh-movement marks the relation between wh- and the clause internal position. The base generated NO moves to SpecCP and is co-indexed with the head via predication.

CLLDs, on the other hand, are movement constructions but their individual operator moves at LF and not in syntax, since these constructions are not ungrammatical if extracted out of Complex Noun Phrases and adjunct clauses, thus displaying no syntactic movement, but obeying the strong island effect (Tsimpli 1990, 1995). An Op at SpecCP, be it either a resumptive pronoun or pro, moves at LF and not the topic itself, as this is base-generated in its surface structure position, according to Browning (1987).

In the following examples we can see that tonic pronouns can only be construed with non-operators, versus clitic pronouns and pro, which are not sensitive to the status of the antecedent (Tsimpli 1995). This verifies the existence of an operator in topicalization, as tonic pronouns are ungrammatical in these constructions:

(3) (a) o janisi ipe oti imaria toni iđe
the John say-P-PERF-3SG that the Mary CL-ACC see-P-PERF-3SG
‘John said that Mary saw him’

(b) *ton Petroi, simbaðun aftoni
the-ACC Peter-ACC like-Pr-IMP-3PL him
‘Peter, they like him’

Assuming that Binding Theory applies both at syntax and LF (Chomsky 1982), and that clitic pronouns are transformed into variables (hence receive a bound variable interpretation at LF, according to McCloskey 1990), the ungrammaticality of tonic pronouns in topicalization is due to their inability to receive a bound variable reading (Montalbetti 1984, Ouhalla 1988).
2.2 No movement-Passive constructions

In Greek passives the 'subject' need not be overtly stated if it is unimportant, obvious or unknown, as 'agentful' passives are rare in Greek and only exist iff the agent is in plural/ a collective noun or an authority with some general over specific reference (Tzartanos 1946, Mirambel 1959, Philippaki-Warburton 1975: 563-578). For this reason only adjectival passives have been examined, as we considered verbal ones marginal and mostly used in formal settings, where small children barely have any access.

(a) Adjectival passives


The major characteristic of verbal passives is the absorption of the external θ-role by passive morphology, without violating the Projection Principle (Chomsky 1981), as the former can also be expressed by a by-phrase adjunct. This is the unique property of passivisation, as case cannot be assigned without θ-role assignment. Adjectival passives eliminate their θ-subject, since they behave like standard adjectives and thus violate PP, having eliminated a lexical feature.

In adjectival passives there exists a categorial change, as they become deverbal. Their categorial change and the fact that in the above process accusative case is also eliminated reveal their lexical status once more and PP is once more violated, as lexical features must be represented at every syntactic level.

Having eliminated the external θ-role, the adjectival passive places the object in that position and leaves the post-verbal position empty without further subcategorisation, something ungrammatical in purely syntactic terms. In verbal passives, however, there still is an internal θ-role, thus a subcategorised [VP NP] position. As this preservation is coupled by the fact that accusative cannot be assigned, movement is obligatory. The object position is occupied by the trace that forms a chain with its antecedent in the [NP S] position and the internal argument role is assigned to the whole chain by the participle. In adjectival passives, however, no movement takes place.
(b) Reflexives

We will also consider reflexive constructions, which possess a passive morphology but are of a middle diathesis. They appear in the active with a reflexive pronoun acting as an object but they sound odd with an *apo-phrase:

\[(4) \text{ (a) } \text{ xtenizo } \text{ ton } \text{ eafio } \text{ mu/}
\text{comb-Pr-IMP-1SG the-ACC myself-ACC CL-GEN/}
\text{xtenizome } \text{*apo } \text{ emena}
\text{be-combed-Pr-IMP-1SG by } \text{ me-ACC}
\text{‘I comb myself/ *I am combed by me’}\]

3. Main study

3.1 Subjects

In order to check children’s ability to comprehend the above displaced constituents, 80 preschool children aged 3;0-6;6 were tested in three private kindergartens, as well as 20 controls. The children were divided into the following four groups, according to age, each one of them consisting of twenty children.

- **Group 1:** 3;0-3;6
- **Group 2:** 3;7-4;6
- **Group 3:** 4;7-5;6
- **Group 4:** 5;7-6;6
- **Group 5:** controls

3.2 Test items

The test examined 12 *wh*-constructions (matrix and embedded subject, matrix and embedded object and matrix and embedded adjunct *wh*-constructions), 4 direct object and indirect object foci constructions, 2 object CLLDs, 6 subject, object and indirect object restricted relatives and finally 2 adjectival passives and 3 reflexives. Apart from the ‘normal’ reflexive, where the action coming from the subject returns to the same subject again (as illustrated in the second story below), the reflexive may also be used when the action that the subject suffers does not originate from the same subject. In this case the very action is more important, the whole construction behaving like a verbal passive where the *by*-phrase is omitted. This is the case of the third story illustrated below.

3.3 Methodology

The task employed in order to check children’s comprehension of the above-displaced constituents is the Truth Value Judgement Task (TVJ). In TVJ tasks
a short story is being played in front of the child with the aid of some puppets, usually three. Then, another puppet that has been observing the story (always the same one) utters the test statement. The child has to evaluate this statement, either positively or negatively and explain the reason for their evaluation. A puppet utters the test statement (and not the examiner herself) simply because children tend to be hesitant to indicate that an adult has been wrong.

Each story has two basic meanings (Crain and Thornton 1998):

(a) Meaning 1, which is a true description of the story but an ungrammatical one. It therefore verifies the Null Hypothesis (Ho), according to which children lack UG principles and as a result, a sentence can be ambiguous for them but not for adults, as children allow both interpretations.

(b) Meaning 2 is the grammatical answer to the question but an inaccurate description of the story. It is always negative and this is so because children often tend to say ‘yes’; if ‘yes’ was the correct answer, it would be evidence in favour of the Experimental Hypothesis (H1), according to which child grammar is part of UG as much as adult grammar, when the child would have possibly not understood the actual test sentence. Therefore, H1 is associated with the negative answer. When the child rejects the test sentence uttered by the puppet, it shows that it is aware of the constraint hidden behind it, proving H1 correct.

Finally, the test is considered properly constructed if two conditions of vital importance are met:

(1) The condition of falsification: This is satisfied iff the context makes the negation of the test sentence a true description of the story.

(2) The condition of plausible dissent: This requires Meaning 2 to be under consideration at some point in the story.

Last but not least, the event corresponding to Meaning 1 should always come last, as last mentioned events are more salient and we do not wish to prove H1 correct just because the last event of the story corresponds to it.

The test, being quite a long one, was applied during two twenty-five minute sessions. Three example stories are given, the first one an example of an indirect focus and the other two of the two types of reflexives (Appendix).

4. Discussion of results

Considering all the above constructions, we can see a clear developmental pattern according to age. That is, the older the children, the better they comprehend the given constructions (see table 1 for percentages of correct responses).

Yet, both CLLDs and relatives display an anomaly in that children of the second age group have a better understanding of the given constructions
Table 1. TVJ task-percentage of correct responses per construction

<table>
<thead>
<tr>
<th>CONSTRUCTIONS</th>
<th>3;0-3;6</th>
<th>3;7-4;6</th>
<th>4;7-5;6</th>
<th>5;7-6;6</th>
<th>Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Wh-constructions</td>
<td>26.25%</td>
<td>43.75%</td>
<td>52.91%</td>
<td>60%</td>
<td>87.98%</td>
</tr>
<tr>
<td>2. Foci</td>
<td>25%</td>
<td>48.75%</td>
<td>60%</td>
<td>70%</td>
<td>100%</td>
</tr>
<tr>
<td>3. CLLDs</td>
<td>22.5%</td>
<td>55%</td>
<td>52.5%</td>
<td>70%</td>
<td>95%</td>
</tr>
<tr>
<td>4. Relatives</td>
<td>26.67%</td>
<td>54.17%</td>
<td>52.5%</td>
<td>66.67%</td>
<td>95.84%</td>
</tr>
<tr>
<td>5. Passive morphology</td>
<td>47%</td>
<td>62%</td>
<td>66%</td>
<td>77%</td>
<td>86%</td>
</tr>
</tbody>
</table>

compared to children of the third age group. Nonetheless, if one examines table 2, which displays a cross-group analysis of statistical significance, they can see that there is no statistical significance between the second and third group in either CLLDs or relative constructions. Therefore, the difference noted in the percentages is negligible.

In general, one could say that comprehension of all A’ displaced constituents begins at the age of 3;6, since in all constructions there is statistical significance between the first and second group, thus marking development (table 2).

Table 2. TVJ task- Statistical significance: cross-group analysis (T-test)

<table>
<thead>
<tr>
<th>CONSTRUCTIONS</th>
<th>1&amp;2</th>
<th>1&amp;3</th>
<th>1&amp;4</th>
<th>1&amp;5</th>
<th>2&amp;3</th>
<th>2&amp;4</th>
<th>2&amp;5</th>
<th>3&amp;4</th>
<th>3&amp;5</th>
<th>4&amp;5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Wh-constructions</td>
<td>5.275</td>
<td>1.253</td>
<td>1.633</td>
<td>4.941</td>
<td>0.044</td>
<td>0.0003</td>
<td>5.757</td>
<td>ns</td>
<td>2.846</td>
<td>6.199</td>
</tr>
<tr>
<td>2. Foci</td>
<td>0.001</td>
<td>4.383</td>
<td>2.254</td>
<td>2.977</td>
<td>ns</td>
<td>0.006</td>
<td>3.432</td>
<td>ns</td>
<td>1.678</td>
<td>3.201</td>
</tr>
<tr>
<td>3. CLLDs</td>
<td>0.002</td>
<td>0.005</td>
<td>7.959</td>
<td>7.049</td>
<td>ns</td>
<td>ns</td>
<td>1.613</td>
<td>ns</td>
<td>5.697</td>
<td>0.002</td>
</tr>
<tr>
<td>4. Relatives</td>
<td>1.049</td>
<td>3.407</td>
<td>1.112</td>
<td>4.281</td>
<td>ns</td>
<td>0.047</td>
<td>2.618</td>
<td>0.025</td>
<td>3.074</td>
<td>2.288</td>
</tr>
<tr>
<td>5. Passive morphology</td>
<td>0.033</td>
<td>0.006</td>
<td>8.489</td>
<td>1.202</td>
<td>ns</td>
<td>0.021</td>
<td>8.864</td>
<td>ns</td>
<td>0.0008</td>
<td>ns</td>
</tr>
</tbody>
</table>

Passive morphology seems to be easier for children to comprehend, as it includes no movement. In table 3, the within-group statistical analysis carried out with a T-test shows that for the first group there is always statistical significance between passive morphology and all the other structures. If this is coupled by the fact that the first group displays a higher percentage of understanding the specific constructions compared to the rest, as is evident in table 1, one could conclude that passive morphology is possibly easier for children.
Table 3. TVJ task- Statistical significance: within-group analysis (T-test)

<table>
<thead>
<tr>
<th>CONSTRUCTIONS</th>
<th>AGE GROUPS</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Wh- &amp; foci</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>0.0006</td>
</tr>
<tr>
<td>2. Wh- &amp; CLLDs</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>3. Wh- &amp; relatives</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>0.008</td>
</tr>
<tr>
<td>4. Wh- &amp; passive morphology</td>
<td>0.0001</td>
<td>0.002</td>
<td>0.026</td>
<td>0.002</td>
<td>ns</td>
</tr>
<tr>
<td>5. Foci &amp; CLLDs</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>0.044</td>
</tr>
<tr>
<td>6. Foci &amp; relatives</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>7. Foci &amp; passive morphology</td>
<td>0.002</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>0.0004</td>
</tr>
<tr>
<td>8. CLLDs &amp; relatives</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>9. CLLDs &amp; passive morphology</td>
<td>0.007</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>10. Relatives &amp; passive morphology</td>
<td>0.001</td>
<td>ns</td>
<td>0.043</td>
<td>ns</td>
<td>0.009</td>
</tr>
</tbody>
</table>

References


Appendix

(1) Η γάτα, ο σκύλος και το καναρίνι παίζουν μέρος σ’έναν διαγωνισμό για τον καλύτερο φύλακα του σπιτιού. Κριτής είναι ο βατραχός. Γάτα: Εγώ αν δω κανέναν κλέφτη τον δείχνω απειλητικά τα νύχια μου και αυτός φεύγει. Σκύλος: Ναι, αλλά εγώ γαργάξω δυνατά και τρομάζω τους κλέφτες και αν θυμόμουμ, τους δαγκώνω κιόλας! Καναρίνι: Εγώ με το κελάτημα μου τους μεγαλώνω και ξεχνάνε ότι ήρθαν για να κλέψουν! Βατραχός: Λοιπόν, μπείτε τώρα όλοι στη σειρά για να σας κρίνω. Εσύ γατούλα θα μπορούσες να είσαι ο νικητής γιατί έχεις νύχια και γρατσουνάς τους ξένους. Ας δώ όμως και τους άλλους πριν αποφασίσω. Εσύ σκύλε, είσαι σίγουρα ένας πιστός φύλακας και προστατεύεις τους ανθρώπους με το γαϊδούρι και το δάγκωμα σου. Εσύ πουλάκι, δεν προσφέρεις και πολλά, γιατί με το κελάτημα και μόνο δεν φεύγουν οι κλέφτες! Λοιπόν, νικητής είναι ο σκύλος που κερδίζει αυτό το υφαίστει τα χρημάτια! Γάτα: Εγώ δεν τη δέχομαι αυτή την απόφαση. Νικητής είμαι εγώ και δικό μου είναι το παιχνίδι! (Το παίρνει και φεύγει)

Διαβολάκι: Ξέρω τι έγινε σ’αυτή την ιστορία. ΣΤΗ ΤΑΤΑ έδωσε το παιχνίδι ο βατραχός.

(2) Γίνεται ένας διαγωνισμός για το ποιός μπορεί να λυθεί πιο εύκολα. Κριτής είναι ο βατραχός που δενεί τον υποπόταμο, τον ελέφαντα και την αρκούδα. Ιπποπόταμος: Εγώ μπορώ να λυθώ πολύ εύκολα. Να, κοιτάξτε με! Μα γιατί δυσκολεύομαι τόσο; Α, να, λύθηκα! Ελέφαντας: Εγώ, είμαι εξυπνούλης και μπορώ να λυθώ πολύ εύκολα. Ορίστε, λύθηκα κιόλας! Αρκούδα: Κι εγώ νομίζω ότι θα τα καταφέρω εύκολα. Για να δούμε. (Προσπαθεί αρ’ εδώ, προσπαθεί αρ’ εκεί...) Τόποτα δεν γίνεται! Αχ, βοήθεια! Ελέφαντάκι, θα με λύσεις εσύ; Μου φανείτα ότι μπλέχτηκα με τα σχοινιά! Ελέφαντάκι: Βέβαια, αρκούδα μου! Να, ορίστε! (Τη λύνει) Αρκούδα: Τέλεια χι εμένα πολύ εύκολα μ’έλυσε ο ελέφαντας!

Διαβολάκι: Ξέρω τι έγινε σ’αυτή την ιστορία. Η αρκούδα λύθηκε πιο εύκολα.

(3) Γίνεται ένας διαγωνισμός γρήγορου ντυσίματος. Παίρνουν μέρος η κουνελίτσα, η τερατούλα και η αφρατούλα. 'Οποια ντυθεί πιο γρήγορα, κερδίζει ένα κολέ. Κουνελίτσα: Πα να βάλω γρήγορα γρήγορα τα ρούχα μου. Μα πού είναι; Δεν τα βρίσκω πούθενα! Τερατούλα: Εγώ είμαι πάρα πολύ γρήγορη. Να δείτε που εγώ θα κερδίσω το κολέ! Να, βάζω γρήγορα γρήγορα το φόρεμα και... Αφρατούλα: Φέρε εδώ αυτό το φόρεμα! Είναι της αδερφής μου! Έλα αφρατούλα μου να σε ντύσω! (Ντύνει αυτός την αφρατούλα). Αφρατούλα: Πρώτη, πρώτη!

Διαβολάκι: Ξέρω τι έγινε σ’αυτή την ιστορία. Η αφρατούλα ντύθηκε πιο γρήγορα.