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Research Article

Binding Principles A and B in Albanian Child Language

Linguistics

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Abstract

Cross-linguistic studies have reported that children's interpretation of reflexives and pronouns varies at great length. According to the Binding Theory (Chomsky, 1981) reflexives are c-commanded by the noun phrases to which they are locally bound, while pronouns must be free in their local domain. Results from different studies have shown that reflexives are interpreted correctly by children from age 4 onwards. On the contrary, children of the same age show a non-adult interpretation of pronouns by allowing pronouns to co-refer with a local c-commanding antecedent. The delay of correct interpretation of pronouns is explained by the interference of pragmatic and syntactic constrains. Using a two picture task the present study aimed at examining the knowledge of the Binding Theory in Albanian children an aspect of grammar not previously investigated. Data collected from 60 children, aged 3;0-5;11 suggested that both reflexives and pronouns are comprehended around the age 5. Therefore, the results indicate a clear symmetry in the comprehension of reflexives and pronouns. This is explained by the fact that personal pronouns, which act like demonstratives in Albanian, are interpreted through binding which rules out any chance for accidental co-reference.

Interpretation of Reflexives and Pronouns in Natural Languages

Cross-linguistic studies have documented the acquisition of Principles A and B of the Binding Theory (Chomsky, 1981), highlighting the fact that children in different languages show knowledge of Binding principles at different ages. Although Binding Theory explicitly determines that a reflexive must occur in the same local domain as its antecedent whereas a pronoun cannot, in many studies, children younger than 6 years show an adult-like pattern (1) of reflexives interpretation (Ruigendijk et al., 2010; Grodzisnky & Kave, 1994; McKee, 1992; Chien & Wexler, 1990), while delaying the correct interpretation of pronouns (2a, 2b) allowing them to corefer with local c-commanding antecedents (Avrutin & Thornton, 1994; Avrutin & Wexler, 1992; Grimshaw & Rosen, 1990; McDanie et al., 1990). This phenomenon known as the Delay of Principle B Effect (DPBE) is attributed to children's incapacity to execute a pragmatic rule, Rule I, which rules out the accidental coreference between a referential noun phrase and a pronoun in the same clause (Reinhart & Grodzinsky, 1993).

1. Mama Bear$_i$ touches herself$_i$ (child and adult interpretation)
2. a Mama Bear$_i$ touches her$_i$ (child interpretation)

   b.Mama Bear$_i$ touches her$_{*i/j}$ (adult interpretation)

Contrary to the interpretation of Principle A, where we found more or less the same pattern cross-linguistically, the results coming from the area of Principle B interpretation are more problematic (see Hamann, 2011 for a review). The difficulty with Principle B has been replicated in many languages (Ruigendijk et al., 2010, Grimshaw & Rosen, 1990; McDaniel et al., 1990) where a clear asymmetry between children's acquisition of Principle A and B has been reported (e.g., for Dutch: Deutsch, Koster & Koster, 1986; for English: Avrutin & Thornton, 1994; Chien & Wexler, 1990; McDaniel et al., 1990; for Icelandic: Hyams & Sigurjonsdottir, 1990; for Russian: Avrutin & Wexler, 1992; for Norwegian: Hestvik & Philip, 1999/2000). However, this asymmetry has been argued by studies in Romance languages and others (for Spanish: 1992; Baauw & Cuetos, 2003; for Greek: Varlokosta, 2010; for Italian: McKee) where no DPBE was observed in children performance (3).

3. O Goofy$_i$ ton$_{j/*i}$ skepase (Greek adult and child interpretation)
Goofy him covered
'Goofy covered him'

There are different explanations given for the absence of DPBE in children interpretation. On the one hand, McKee (1992) found that Italian children scored correctly on both conditions: reflexives and pronouns. Furthermore, the study reported a better performance of Italian children in clitics pronominals rather than pronouns. Based on these results, McKee refused the pragmatic interference (Avrutin & Wexler, 1992) as a possible explanation for the lack of DPBE in Italian children. She argued that since the pragmatics of pronouns is the same cross-linguistically then children must interpret pronouns in the same way despite the language they speak. McKee hypothesized a syntactic explanation i.e children will continue to make mistakes until they learn that it is IP and not VP the relevant governing category for pronouns where any coindexation with the subject will be a violation of Principle B. Therefore, in the light of her hypothesis it is the structural position of pronouns that makes the difference in the interpretation of Principle B cross-linguistically. On the other hand, Baauw et al (1997) and Varlokosta (1999) attribute the absence of DPBE to the underspecification of pronominals for the feature [human]. Using the Truth Value Judgment task Varlokosta found that Greek children (mean age 4; 5) responded correctly on pronouns condition 87% of the time and on clitic pronouns 95% of the time. Therefore, no difference in the comprehension of strong and clitic pronouns was reported in Greek children. The explanation for the lack of the DPBE in Greek is related to the fact that clitics and object pronouns, which act as demonstratives, are bound either in syntax or in discourse, since through binding they inherit the values of their human and non-human referents. Given that binding excludes coreference, Rule I does not apply in clitics and pronouns in this language.

Reflexives and Object Pronouns In Albanian

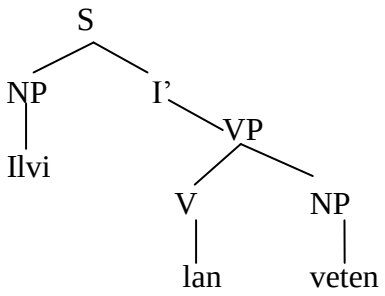
Regardless of the richness in personal pronouns, there are only two variants of reflexives in Albanian: *vetja and vetvetja*, with no semantic or syntactic differences between them. The same forms are used for the first-, second-, and third-person singular and plural (4a, b, c). Given that reflexives do not change their form for the features expressing person, number and gender no suffixes must be added to them (4a, b, c). Reflexives are inflected like definite, singular, feminine nouns. In other words, despite the gender of the antecedent, the reflexive bears the same feminine endings. Reflexives' nominative forms are *vetja, vetvetja*; genitive forms: *vetes, vetvetes* and accusative forms: *veten and vetveten* 'myself, yourself, herself etc.'

4. a. Unë laj veten
I wash myself
b. Ti lan veten
You wash yourself
c. Ata lajnë veten
They wash themselves

The governing category of reflexives in Albanian is the IP, where the antecedent of the reflexive c-commands it. In the sentence (5), Ilvi binds the reflexive *veten* himself and because it c-commands the reflexives it carries the same index. The antecedent of the reflexive needs to be the closest c-commanding subject to the reflexive.

5. Ilvi$_i$ lan veten$_i$
Ilvi$_{NOM}$ wash$_{TRANS}$ himself$_{REFL}$

'Ilvi washes himself.'



Unlike reflexives, pronominal elements in Albanian are two types: strong and clitic pronouns. Strong pronouns operate as objects of the verb (6a) and subjects of the sentence (6b). They are inflected for number and case. Object pronouns which are the focus of this study are inflected for number but not for gender: *Ilvi pastron atë* 'Ilvi is washing him' vs. *Ilvi pastron atë* 'Ilvi is washing her'. Third person object pronouns are forms of demonstrative pronouns *atë* 'this', *ata* 'these/those'.

6.a Ilvi_i lan atë_j

Ilvi_{NOM} wash_{TRANS} him_{PRO}

He washes her/him

b. Ai_i lan Ilvin_j

He_{PRO} wash_{TRANS} Ilvin_{ACCUS}

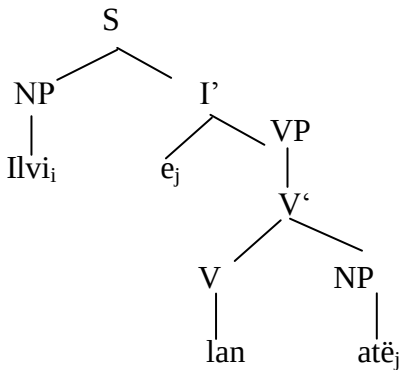
He washes Ilvi

The binding domain for the Albanian strong pronouns is a VP, and for clitic pronouns Infl in IP. In (7), Ilvi binds neither the trong pronoun nor the clitic pronoun since it will be a violation of Principle B. The pronoun finds its referent in the extralinguistic context.

7. Ilvi_i e lan atë_j

Ilvi_{NOM} clitic wash_{RANS} him_{PRO}

'Ilvi is washing him.'



The Experiment

Methodology

To study the comprehension of reflexives and object pronouns in Albanian, we used Perovic et al's (2010) Two-choice picture selection task adopted from Wexler and Chien (1990). However instead of Simpson's family, we used photos of our own family (Mom, Dad, Ilvi and Sindi). Before the test session children had a training session to familiarize with the materials (the characters, the verbs and the responses). The characters were introduced to children one by one on a laptop using the PowerPoint, e.g., This is Ilvi, this is Sindi, etc. Children were asked to point the photo that matched the character uttered by the experimenter. This practice was followed by the introduction of the verbs. Two practice items involving simple transitive constructions were also tested: 'Mami hugs dad' and 'Ilvi kisses Sindi'.

During the test session, every child was tested on the four conditions of the experiment. Children were exposed to the sentences one by one and were asked to choose one of the two pictures that matched the sentence played on the laptop. When necessary the sentences were repeated. A spontaneous self-correction was allowed for all responses without counting it as an error. To control for visual bias, the correct answer was alternated between pictures presented on the left and right side in all conditions (Perovic et al., 2012). No feedback was given to the children. The experiment lasted approximately 20 min.

Participants

Sixty Albanian children were recruited from two daily care centers in the city of Vlora. Children were subscribed as participants in the experiment only after having received their parents' written consent. All participants were born and were living in the same urban area. For the purpose of the study three groups of twenty children were formed. The average age for each group was decided based on the findings reported in the literature in regard to the extreme ages TD children in different languages show knowledge of Principle A and B. Participant distribution and details on the age groups are given in Table 1.

Table 1. *Participant data.*

Comprehension of reflexives and pronouns			
N= 20 groups	Age range	Mean	SD
Group 1 (3 year olds)	3; 0 – 3; 11	3; 7	(0; 2)
Group 2 (4 year olds)	4; 0 – 4; 11	4;4	(0;3)
Group 3 (5 year olds)	5; 0 – 5; 11	5; 6	(0; 3)

Control and Test Conditions

Children were tested on two control conditions: Name Condition (8) and Possessive Condition (9). Each condition consisted of 8 sentences which contained a group of 8 verbs that were expected to be very familiar to children between 3 and 5 years old. The purpose of Name Control condition was to test if children could perform well where no binding was involved, whereas the Possessive Control Condition's goal was to investigate if children errors in test conditions were due to their poor understanding of the possessive structures or binding.

8. Sindi kreh mamin.
   $\text{Sindi}_{\text{NOM}}$ $\text{comb}_{\text{TRANS}}$ $\text{mother}_{\text{ACCUSS}}$.
   'Sindi combs her mother hair.'
9. Babai i Ilvit luan me letra.
   $\text{Father}_{\text{NOM}}$ of Ilvi_{GEN} $\text{play}_{\text{TRANS}}$ $\text{with}_{\text{PREP}}$ $\text{cards}_{\text{ACCUSS}}$
   'Ilvi's father plays with cards.'

In addition, children were tested in two test conditions: Name reflexives (10) and Name Pronoun (11). Each condition consisted of 8 sentences which contained a group of 8 verbs (*laj* 'wash', *vesh* 'dress', *kreh* 'comb', *fshih me peshqir* 'dry', *mjekoj* 'cure', *mbuloj* 'cover', *ushqej* 'feed', *pastroj* 'clean').. Name reflexive condition (NR) tested the acquisition of Principle A. As shown in (10), the subject of the sentence was a possessive structure (noun phrase's), while the object of the sentence a reflexive pronoun. Two pictures were shown on the laptop's screen. The first photo (A) shows Vali (Sindi's mother) cleaning herself and a second person (Sindi) standing nearby, while the second photo (B) shows Vali cleaning Sindi. The correct answer for (10) is the photo A.

10. Mami i Sindit pastron veten.
    $\text{Mother}_{\text{NOM}}$ of $\text{Sindi}_{\text{GEN}}$ $\text{clean}_{\text{TRANS}}$ $\text{herself}_{\text{REFL}}$
    'Sindi's mather is cleaning herself.'

The second test condition, Name Pronoun (NP), tested the mastery of strong object pronouns (11). The subject of the sentence was a possessive structure, while the object a strong object pronoun. The correct answer for (11) is the photo where Sindi's mother (Vali) is feeding Sindi.

11. Mami i Sindit ushqen atë.

    $\text{Mother}_{\text{NOM}}$ of $\text{Sindi}_{\text{GEN}}$ $\text{feed}_{\text{TRANS}}$ her_{PRON}

    'Sindi's mother is feeding her.'

Results

Results from the experimental investigation of knowledge of binding in 60 Albanian children are summarized on Tables 2 and 3. Table 2 illustrates the proportion of correct vs. incorrect responses on control conditions (Control Name and Control Possessive).

Table 2. Proportion of correct responses and their frequency on control conditions.

	Correct responses		Frequency	
Group	NC	PC	NC	NP
Group 1	91%	93%	145/160	149/160
Group 2	94%	97%	150/160	156/160
Group 3	98%	96%	157/160	154/160

As Table 2 indicates, children performance on control conditions was adult-like. The almost perfect performance of all children on control conditions showed that children were able to understand the task, and that any error in their performance would also be related to their poor knowledge on binding principles.

Table 3. Proportion of correct responses and their frequency on test conditions.

	Correct responses		Frequency	
Group	NR	NP	NR	NP
Group 1	69%	63%	111/160	101/160
Group 2	82%	79%	132/160	126/160
Group 3	94%	91%	151/160	147/160

Table 3 shows the proportion of correct responses and their frequency on test conditions. The accuracy of children's response to test items increases with the age and becomes highly adult-like around the age of 5. Children in Group 1 responded correctly to sentences with reflexives 69% of the time. Three children in this group were accurate less than 50% of the time, two children were accurate on the target items 50% of the time while the rest (15 children or 75% of the sample) were accurate over 50% of the time. The proportion of correct responses increased from Group 1 to Group 2 (69% to 82%), where the number of children who scored correct responses less than 50% of the time was reduced. Also, a higher proportion of correct responses was found in the performance of the 5-year-old children, where all children in Group 3 group but one performed almost at ceiling, in contrast to 70% of the sample in Group 2. The some pattern was found in the acquisition of Albanian object full pronouns. Like reflexives, the performance of children on pronouns increased at each of the ages tested. Children in the first group scored correctly 63% of the time, while children in the second group responded correctly 79% of the time. The highest performance was achieved by the 5-year-old children. As shown in Figure 1, children's performance on pronouns at age 5 (or more specifically for the group tested, mean age 5; 6) was the highest (91%). Results from the paired t-tests showed that there were no differences in the performance of Albanian children on reflexives and pronouns in each of the groups tested: t(NR3-NP3)= 1.572, p= 0.160, t(NR4-NP4)= 0.832, p= 0.433; and t.test for 5-year-old children: t(NR5-NP5)= 1.080, p= 0.316.

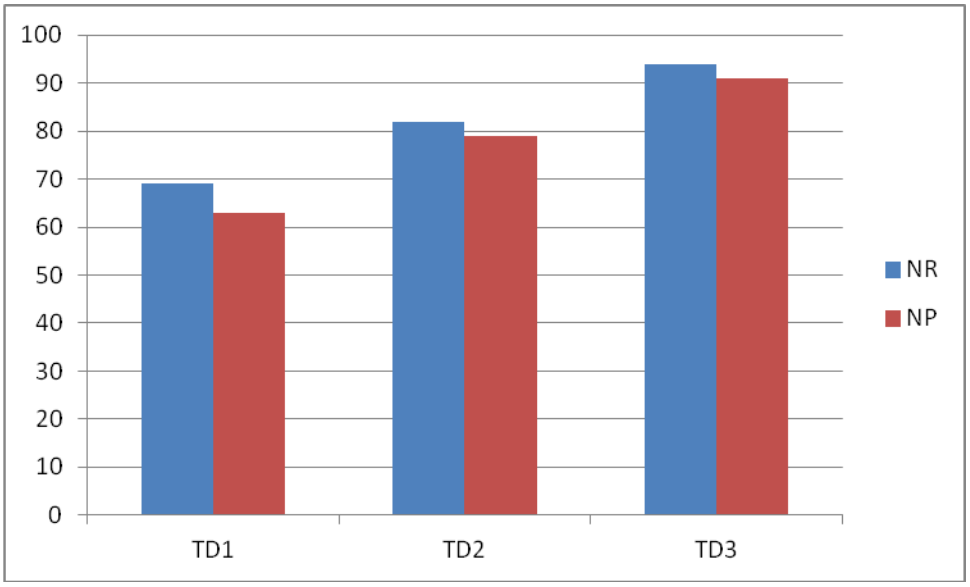


Figure 1. Comprehension of reflexives and pronouns by Albanian 3-,4-, and 5- year olds.

The interpretation of pronouns and reflexives in Albanian showed a pattern that is not different from the one found in the comprehension of reflexives and pronouns in some Romance languages, Polish and Greek. The

performance of Albanian-speaking children on reflexives and pronouns increased at each of the ages tested simultaneously. Data from the experiment showed that children's performance on pronouns improved from age 3 to age 4: t (NP, 3- 4) = -2.324, p=.03 and from age 4 to age 5: t (NP, 4-5) = -2.796, p=.01. The same results were found for the reflexive condition: t (NR, 3-4)= -2.333, p=.03 and from age 4 to age 5: t(NR, 4-5)= -3.009, p=.009.

Discussion

Using a Two picture choice task in assessing the Albanian children's knowledge of Principles A and B of the Binding Theory, we found a different pattern of binding acquisition from that reported in many cross-linguistic studies, but similar to the one reported for the Romance languages and Greek. In comparison to many languages, including English, Albanian-speaking children showed command of both Principles A and B at the age of 4 confirming the claim that no delay in Principle B is present in some languages.

On the one hand, results of the experiment in regard to the comprehension of Principle A reveal a clear pattern that is in line with the results reported in English (Wexler & Chien, 1990). The results indicate that the highest performance on reflexives was reached by the 5-year-old children (mean age 5;6), who had an adult-like performance 94% of the time indicating a clear knowledge of the binding requirements of the reflexives. Like in many languages, Principle A was found to be operative in Albanian before the age of 6 years when children demonstrate adult-like knowledge of reflexive as c-commanded to a local antecedent.

On the other hand, the comprehension of object pronouns showed a pattern that is not different from the one found in Romance languages and Greek (Varlokosta, 1999). Children showed an adult-like interpretation of reflexives and pronouns with no significant differences in their interpretation since age 5. Like in Greek we observed no DPBE in children performance. The pattern of no DPBE was reinforced by the results achieved in the second and third group where children correct responses increased from 79% to 91% of the cases.

Our explanation for the lack of DPBE in the Albanian language is based on the Baauw et al's (1997) assumption that the underspecification of the feature [human] in strong pronouns renders DPBE not applicable in some languages. Unlike English, the object pronoun *atë* 'her/ him' in Albanian is underspecified for the feature human i.e., it has the property of being [+/- human]. Therefore, the pronoun *atë* 'him/ her' (12) might refer either to an animate antecedent (e.g., *Ben* 'him') or to an inanimate antecedent (e.g., *the dog* 'it').

12. Ilvi e lan atë

Ilvi$_{NOM}$ e$_{clitic}$ washes$_{TRANS}$ him $_{STRONG\ PRON}$

'Ilvi washes him'.

Like in Greek, the object pronouns need to establish a binding relation with their coindexed antecedents in order to be specified for the feature human and inherit from them the other features such as: number, gender and person. But as we know, binding does not allow coreference to occur and as the result no delay of pronouns is possible. Thus, the explanation for the absence of DPBE in Albanian child language is related to the feature specification of pronouns. However, we must acknowledge that a more extensive study with a larger number of participants of different ages is needed to replicate the findings and establish the exact nature of Principles A and B in Albanian. On the other hand, more longitudinal studies on the interpretation of strong and clitic pronouns, both in contexts that exclude and allow coreference, are needed to uncover the relationships between different language domains and the constraints of specific linguistic and pragmatic functions in the language of Albanian-speaking TD children.

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