(UNIQUE) ERRORS IN THE ACQUISITION OF RELATIVE CLAUSES IN PALESTINIAN ARABIC AND THEIR (MOVEMENT) ACCOUNT

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1 Introduction

The acquisition of relative clauses (RCs) involves non-target like productions such as over-use of resumptive pronouns (1), use of resumptive DPs (RDPs) (2), and omission of resumptive PPs in languages such as Hebrew where such omission is not allowed (3) (Armon-Lotem, Botwinik-Rotem & Birka 2006, Guasti & Shlonsky 1995, Hamburger & Crain 1982, Labelle 1990, Pérez-Leroux 1995, Varlokosta & Armon-Lotem 1998, a.o.).

<u>Target</u>:   the ball that the boy catches
(1) the ball that the boy catches **it**   resumptive pronoun
(2) the ball that the boy catches **the ball**   RDP

<u>Target</u>:   ha-ec   she-ha-gamad   tipes   **alav**
          the tree that-the-dwarf   climbed on-it
          'the tree that the dwarf climbed'

(3) ha-ec   she-ha-gamad tipes
    the tree that-the-dwarf climbed
    'the tree that the dwarf climbed'

Children acquiring Palestinian Arabic (PA) make two **unique errors**, never documented before (Bshara 2012): "Subject Fronting" (4) and "Double *illi*" (5) (*illi* is the relative complementizer in PA).

Target: `iz-zara:fi   *illi*   l-walad ḥaẓan-ha
                the-giraffe that the-boy hugged-it
                'the giraffe that the boy hugged'

(4) `iz-zara:fi **l-walad** *illi* ḥaẓan-ha   Subject Fronting
      the-giraffe the-boy that hugged-it

(5) `iz-zara:fi ***illi*** l-walad ***illi*** ḥaẓan–ha   Double *illi*
      the-giraffe that the-boy that hugged-it

The goals of the present paper are: (i) To define the aspects in the derivation of PA RCs, which can give rise to the unique errors in their acquisition, and (ii) To account for the RDP error.

The paper is structured as follows. In section 2, we overview some theoretical issues concerning the derivation of RCs in general and of RCs in Arabic, in particular. Based on this, we discuss the central proposals for the acquisition of RCs, showing that none of them can account either for the distribution of RDPs in a variety of languages, or for the 'unique' errors in the acquisition of PA RCs. Section 3 presents the experimental study eliciting production of RCs. The results of the study are presented and analyzed in section 4 leading to the specific questions we aim at answering. In section 5 we argue that the 'unique' errors indeed stem from the peculiarities of the derivation of Arabic RCs, whereas the familiar RDP error can be accounted for using the 'matching analysis'.

2 RCs in the Linguistic Theory and Their Acquisition

Relative clauses (RCs) are embedded CPs modifying noun phrases. They include an element (overt or null, depending on a language), coindexed with the modified NP (6).

(6) a. [This is **the present**$_i$ [$_{relativeCP}$ which$_i$/that Lisa bought __$_i$]]   English
      b. ha:dhi **l-hadiyyi**$_i$ [$_{relativeCP}$ *illi* muna   shtarat-(**ha**$_i$)*]]   PA
          this   the-present   that Mona   bought-it
          'This is the present that Mona bought.'

RCs raise semantic and syntactic questions. For the purposes of this paper, we focus mostly on their mode of derivation, namely the formation of the predicative (modifier) CP, on the nature of the element coreferential with the head of the relative, and on the way this is achieved.

2.1 Movement Analyses of RCs

In the transformational literature there are two major trends in the analysis of relative clauses. In one of them the head of the relative is base generated outside the relative CP, while in the other it is base generated within the relative CP. The first trend can be further divided into the more /traditional 'operator-movement' analysis (Browning 1987, Chomsky 1977, 1986,

Rothstein 1991, a.o.) in (7)[1], and the more recent 'matching analysis' (Sauerland 1998, 2000, 2002) in (8).

(7) the [NP [NP present$_j$] [CP Op$_i$ that/which$_i$ [IP Lisa bought t$_i$]]] (where j = i)

(8) the [book] [CP [Op/which book]$_i$ Lisa bought t$_i$]

The second trend is represented by the so-called 'head-raising' analysis (Vergnaud 1974, Kayne 1994, Bhatt 2000, 2002, Bianchi 1995, a.o.) in (9a). Under this analysis, if the operator is overt, the relative head moves out of spec-CP to its surface position as in (9b).

(9) a. [DP the [CP [Op-car$_j$]$_i$ that [Homer bought t$_i$]]]

b. [DP the [CP [car]$_j$ [CP [which t$_j$]$_i$ [Homer bought t$_i$]]]]

2.2 Pronouns in Relative Clauses: Movement vs. Binding

RCs do not necessarily involve a gap (trace), but may also involve a (resumptive) pronoun (10). In some languages (e.g. English, an 'intrusive pronoun language', Sells 1984) the occurrence of the pronoun is limited to island configurations ((10a) vs. (10b)), whereas in others (e.g. Hebrew, PA, 'true resumptive pronoun languages', TRP) it is not (10c, d).

(10) a. the present$_i$ [CP that Lisa didn't know [CP who send **it$_i$**]]   English
b. *the present$_i$ [CP that Lisa send (***it$_i$**)]
c. ha-matana$_i$ [CP she-lisa   kanta (**ota$_i$**)]   Hebrew
   the-present   that-Lisa bought (it)
   'the present that Lisa bought'
d. l-hadiyyi$_i$ [relativeCP *illi* muna   shtarat-(**ha$_i$**)[*]]   PA
   the-present   that Mona   bought-it
   'the present that Mona bought.'

Sells (1984) proposed that (in TRP languages) the derivation with the pronoun does not involve movement of the operator. Rather, the operator is base-generated in spec-CP binding the resumptive pronoun.

(11) `iz-zara:fi$_i$ [CP **Op$_i$** *illi* l-walad ḥazan-**ha$_i$**]   Binding derivation
   the-giraffe   that the-boy hugged-it
   'the giraffe that the boy hugged'

2.3 Relative Clauses in (Palestinian) Arabic

Shlonsky (1992) proposes that movement is the default operation in the grammar, and all occurrences of resumptive elements are due to a "last resort strategy", when movement is impossible. That is, only (highest) subject relatives are formed via (A-) movement in PA,

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1 Despite its familiarity, there are reasons to believe that this analysis of relative clauses is untenable (Bhatt 2002, Safire 1999, Sauerland 1998, 2002, 2004).

whereas all other relatives including a resumptive (clitic) are formed via binding (12).[2] The proposal is supported by the lack of sensitivity to island configurations in PA RCs.

(12) `iz-zara:fi   [CP **Op**i *illi* l-walad ḥaẓan-**ha**i]   PA, binding derivation
       the-giraffe   that the-boy hugged-her/it
       'the giraffe that the boy hugged'

Aoun & Choueiri (1996) argue that despite the occurrence of a resumptive clitic, RCs in Lebanese Arabic (LA) can involve A'-movement.[3] The authors show that reconstruction effects are found only in relatives which do not include islands, whereas in relatives including islands reconstruction effects are not attested. The movement derivation of LA relatives, referred to as 'pro to COMP', is based on the following claims:

- The relative complementizer (*yalli*, in LA) has definiteness, Case, and φ-features.
- These (nominal) features need to be checked in the course of derivation.
- The element that checks these features is identified as *pro*.
- *pro* is base generated as the complement of the verb/preposition, licensed by the resumptive clitic.

The derivation of a relative clause involving movement of *pro* to spec-CP is shown in (13), and its binding variant is given in (14):

(13) <u>Movement derivation</u> of 'the giraffe that the boy hugged' (12)
       Base-generation: [DP `iz-zara:fi   [CP *illi*[+def], [φ], [Case] l-walad ḥaẓan-hai *pro*i]]
       Spell-out: [DP `iz-zara:fi [CP *pro*i *illi*[+def], [φ], [Case] l-walad ḥaẓan-hai ti]]

(14) <u>Binding derivation</u> of 'the giraffe that the boy hugged' (12)
       Base-generation/Spell-out:
       [DP iz-zara:fi [CP *pro*i *illi*[+def], [φ], [Case] l-walad ḥaẓan-hai *pro*i]]

To summarize, RCs in Arabic always include resumptive clitics (modulo highest subject position), however, based on the existing evidence, they might be derived either via binding, or via movement. Note however that PA RCs are unusual in at least two respects: (i) both derivations give rise to the same spell-out in (13) and (14); (ii) the nature of the element occupying spec-CP (*pro*) and its function (nominal feature-checking) are quite different from what is assumed in the familiar analyses of RCs. As a result, PA speaking children's production might include errors not attested in other languages.
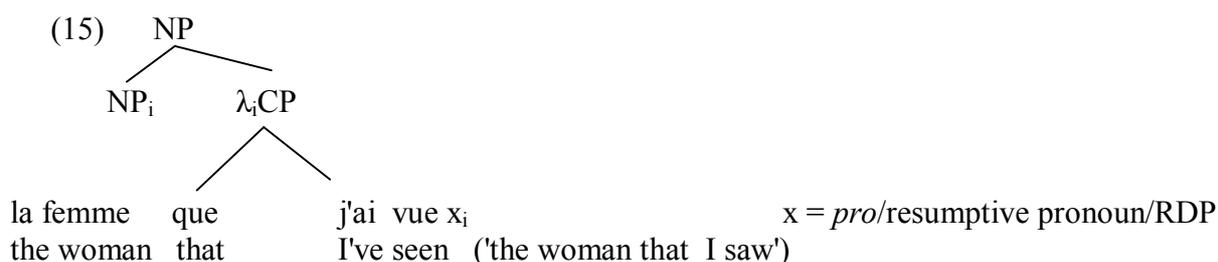
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[2] Shlonsky proposes that the occurrence of resumptive elements in PA and Hebrew is due to the lexical make-up of the relative C and its specifier, with the latter being an A-position. As the result, and given Relativized Minimality (Rizzi 1990), movement from all positions except the highest subject is impossible, leading to the occurrence of a resumptive.

3 Similarly to Shlonsky (1992), Aoun & Choueiri (1996) recognize the unique status of subject relatives (SR). Their treatment of these relatives is, however, different. They note that unlike all other positions, where a resumptive is realized as a verb clitic, the subject position in LA relatives can, in fact, be realized by a strong pronoun (e.g. *huwwe*, 'he'). Consequently, they suggest that SRs without a resumptive are instances of *pro*-drop, rather than of movement.

2.4 Acquisition of RCs

In light of the above, there are different modes of RC derivation across and within languages (i.e. movement vs. binding), accompanied by the not so neat distribution of resumptive pronouns. The two modes of derivation of RCs developed in the linguistic theory underlie the two main approaches in the research on the acquisition of RCs, aiming to explain the use of resumptive pronouns and gaps in early formation of relative clauses:

(i) The *non-movement* (i.e. binding) approach: the resumptive pronoun is base-generated within the relative clause, bound by an (semantic) operator; the gaps are viewed as null resumptives (*pro*) (Labelle 1990).

(15)   NP

   NP$_i$ λ_iCP

la femme   que   j'ai vue x$_i$ x = *pro*/resumptive pronoun/RDP
the woman   that   I've seen   ('the woman that I saw')

(ii) The *movement* approach: gaps are traces (silent copies), while resumptive pronouns are accounted for as spell-out of the traces or as a result of a binding derivation.

(16) la [$_{CP}$ femme$_i$ que j'ai vue t$_i$]   Guasti & Shlonsky (1995), head-raising analysis
        the   woman   that I've seen
      'the woman that I saw '

(17) the woman [Op$_i$ that I saw t$_i$]   Pérez-Leroux (1995), operator movement analysis

Abstracting away from the details, none of the aforementioned analyses can account for the distribution of RDPs. In Labelle (1990) RDPs are viewed on a par with resumptive pronouns. However, as pointed out by Labelle herself, the distribution of resumptive pronouns and RDPs is not identical. RDPs do not occur in subject and genitive relativization sites. Guasti & Shlonsky's (1995) account for the limited distribution of RDPs involves their being moved at LF. Consequently, their absence in the subject position is attributed to an ungoverned trace (at LF).[4] This account can not be extended to the absence of genitive RDPs contained in the DO DP; moving the DO presents no problem. Consequently, genitive RDPs in object position are erroneously predicted to occur in children's productions (e.g. *'the boy I found [the] boy ['s] hat').[5] Pérez-Leroux's (1995) proposal does not account for the limited distribution of RDPs because under her analysis RDPs are viewed on a par with resumptive pronouns, whose distribution is free. Since RDPs are lacking from children's subject relatives in PA as well, a different account is in order.

To summarize, none of the approaches accounts for the distribution of RDPs in the acquisition of RCs across languages, including PA. Moreover, neither of them is equipped to account for the 'unique' errors in the production of RCs in the acquisition of PA. If children

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[4] The occurrence of RDPs, is suggested to result from "expletive replacement" at LF, namely from LF movement from the base-generated position within the relative CP to spec-CP.

5 Note that since the proposal predicts RDPs to occur in any position from which movement is possible, it is not clear how it can be carried over to languages like Hebrew, where the distribution of RDPs is more limited than in French (Armon-Lotem et al. 2006).

are employing a binding derivation (Labelle 1990), why would they front the subject of the RC? Why would there be two instances of *illi*? What would trigger subject fronting, in addition to head-raising (Guasti & Shlonsky 1995), or operator movement (Pérez-Leroux's (1995)?

3 Method

3.1 Participants

The study tested four groups of participants: three groups of PA-speaking children, aged 3-4, 5-6 and 8-9 years, 20 participants each, and one control group of 10 PA-speaking adults. The children were all monolingual, PA-speaking from two kindergartens and an elementary school in an Arabic speaking town in the center of Israel. The adults, who ranged in age from 20 to 40, were also PA-speaking monolinguals from the same town.

Table 1. Number of participants, gender, and mean age for the different groups

Group	Male	Female	Total	Mean Age (SD)
3-4 y.o	8	12	20	3;7 (SD=3.7 months)
5-6 y.o	10	10	20	5;6 (SD=3.3 months)
8-9 y.o	10	10	20	8;7 (SD=3.1 months)
Adults	4	6	10	31;1 (SD=8.1 years)

3.2 Tasks and Procedure

The study made use of two production tasks: elicited production with pictures à-la Lakshmanan (2000), and an elicited production with props, à-la Varlokosta & Armon-Lotem (1998). Both tasks were used to test the two youngest groups, while the 8-9 year olds and adults were tested only with pictures.

Five types of relativization sites were tested: Subject (S), Direct Object (DO), Indirect Object, namely a dative argument (IO), Locative Prepositional Phrase (LPP) and selected Prepositional Phrase (PP):

(18) a. `il-mara   *illi* (*-*ha*)   jjawwazat   maḥmu:d   S
        the-woman   that*-*she Nom.* married-3sg.fm   Mahmood
        'the woman that married Mahmood'

   b. `il-mara   *illi* maḥmu:d jjawwaz-*(ha*)   DO
        the-woman   that Mahmood   married-*(her*)
        'the woman that Mahmood married'

   c. `il-mara       *illi*  maḥmu:d  `a'ta:-*(ha*)   wadri   IO
        the-woman that Mahmood gave*(her*)   flower
        'the woman to whom Mahmood gave a flower'

d. `il-waraka   *illi*   maḥmu:d   katab  'ale-\*(*ha*)      `ism-u   LPP
   the-sheet   that Mahmood wrote on-*(*it*) Acc   name-3sg.ms Gen
   'the sheet that Mahmood wrote his name on'

e. `iz-zalami   *illi*   l-walad xa:f   minn-*(*u*)   PP
   the-man   that the-boy feared   from-*(*him*)
   'the man that the boy feared'

Elicited production with pictures. All five types of relativization sites were tested with three pairs of pictures for each site (total 15 pairs). In each picture there were one or two identical characters engaged in different activities. The participant and the experimenter looked at each pair of pictures, and the experimenter turned her head, and asked the subject to point to one of the characters. Then the participant was asked; 'which X (dog) did you point to?' All participants were tested with this task.

Elicited production with props. To confirm that the results of the elicited production task with pictures reflect accurately the linguistic ability of the younger age groups, the 3-4 year olds and 5-6 year olds were also tested with an elicited production task with props. There were six stories per site (for a total of 30). For example, in testing the child's relativization of an LPP, the child was told: "In this story we have two identical dogs. Anita is sitting in front of one dog and Roger is sitting behind the other dog".

(19) Experimenter: `ayya   kalib mabsu:t?
                    which dog   happy
                    'Which dog is happy?'

     Child: `*illi*   rojir   qa:'id   wara:-h
            (the one) that   Roger   sit-3sg.-ms. behind-it acc.
            'the one that Roger is sitting behind'

4 Results

Results are presented first for level of success in each task for the three child groups and then in terms of error analysis.

4.1 Level of Success

4.1.1 Elicited Production with Pictures
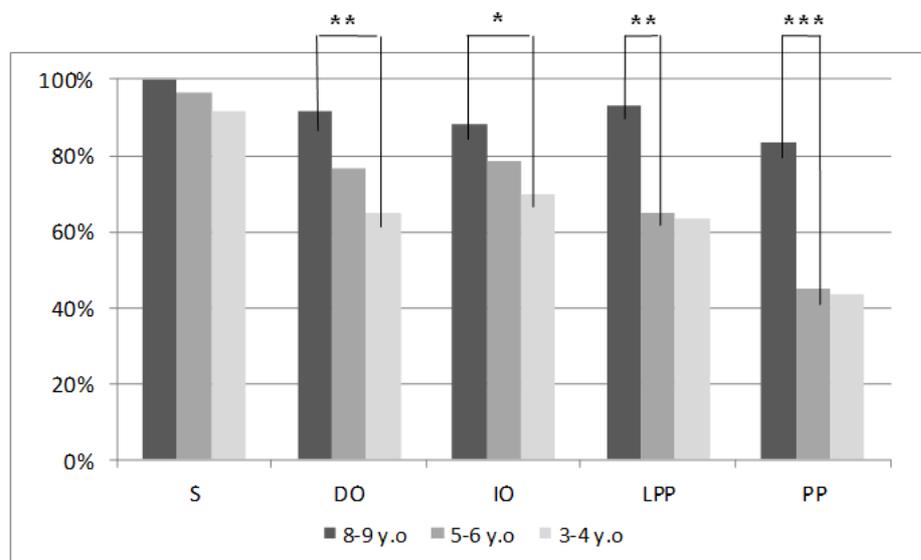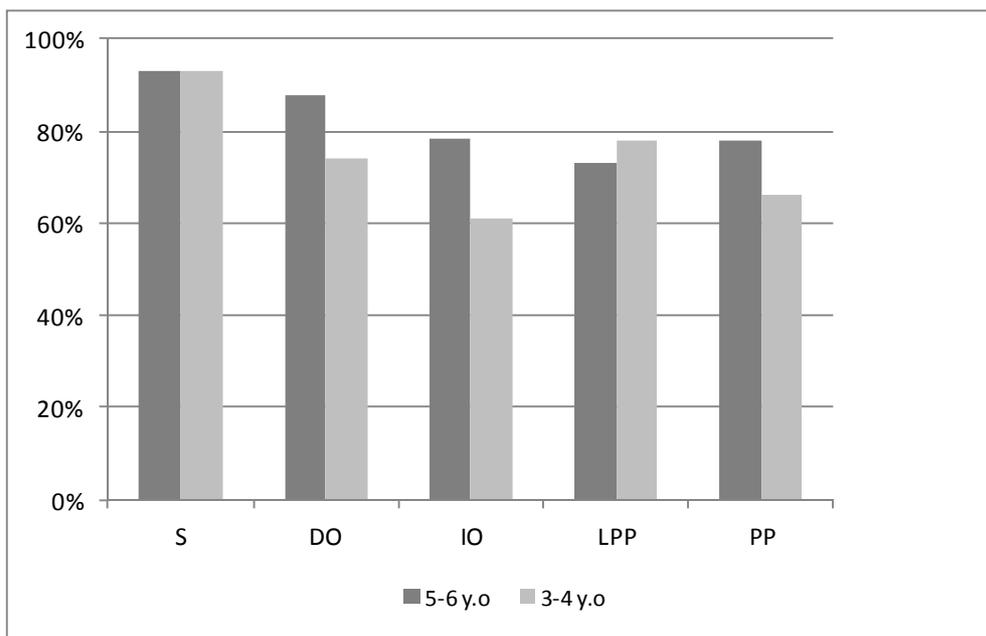

*p<0.05, **p<0.01, ***p<0.001

Figure 1. Comparison of the different age groups in the correct productions of relative clauses in the elicited production with pictures, looking at the correct responses out of total responses

A between-group comparison per category using one-way ANOVAs shows significant differences between the different age groups in correct production of DO (F(3)= 5.08, p=0.0032), IO (F(3)=5.29, p=0.0025), LPP (F(3)= 8.12,p=0.0001) and PP (F(3)=16.37, p<0.0001) relative clauses when the correct responses out of all were considered. Posthoc tests show that the 3-4 year olds are significantly worse than the 8-9 year olds in their correct production of DO, LPP and PP relative clauses and the 5-6 year olds are significantly worse than the 8-9 year olds in their correct production of LPP and PP relative clauses. A within-group analysis using a one-way ANOVA for each group shows a significant difference in correct production of the different types of relative clauses in the 3-4 year-old group (F(3)=8.79, p<0.0001) and 5-6 year-old group (F(3)= 14.42, p<0.0001), but not in the 8-9 year-old. Post-hoc tests show that the three groups of children performed best on S relative clauses and worst in PP relative clauses, but had a dissimilar gradation of production of DO, IO and LPP relative clauses.

1.2 Elicited Production with Props

Figure 2. Comparison of the two age groups in correct production of relative clauses in the elicited production with props, looking at the correct responses out of total responses

A two-way ANOVA comparing the two groups on DO, IO, LPP and PP, shows a significant difference between the two age groups ($F(1)=6.43$, $p=0.012$). This difference does not prove significant in any particular category, however. A within-group comparison using a one-way ANOVA shows a significant difference in correct production of the different types of relative clauses within both groups of children ($F(4)=7.21$, $p<0.0001$ in the 3-4 year-old-group and $F(4)=5.51$, $p<0.0006$ in the 5-6 year-old-group). Post-hoc Tukey HSD tests show that the significant difference in the 3-4 year-old-group can be attributed to the gap between correct production of S relative clauses and each of DO ($p<0.05$), IO ($p<0.01$) and VPP ($p<0.01$) relative clauses.

4.2 Error Analyses

Of particular interest are errors produced by the children in the production of non-subject relative clauses which can inform us about the source of difficulty in these structures.

4.2.1 Errors in Elicited Production with Pictures

Subject fronting was the most frequent error in the three groups. In both 5-6 and 8-9 year-old groups, double `*illi* is used less than subject fronting and RDP is the least used type of error. In 3-4 year-old-group, the order is reversed: RDP is used less than subject fronting but more than double `*illi*. Moreover, the 5-6 year olds make much more of the three types of errors than both of the 3-4 year olds and 8-9 year olds. The 3-4 year olds make more RDP errors (7 vs. 2), but less double `*illi* errors (1 vs. 4) than the 8-9 year olds.
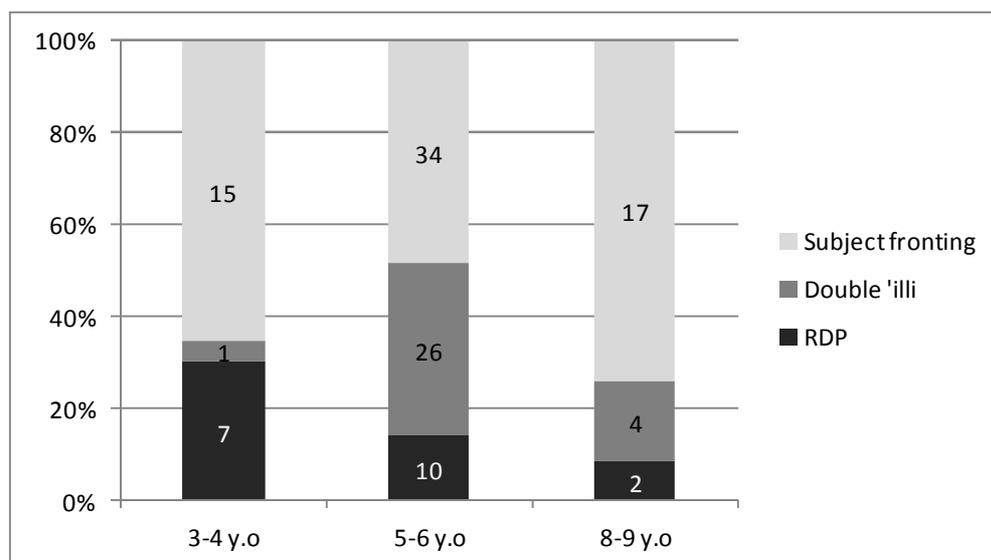
Figure 3. Comparison between the child groups in frequency of usage of the three most frequent types of errors in the elicited production with pictures
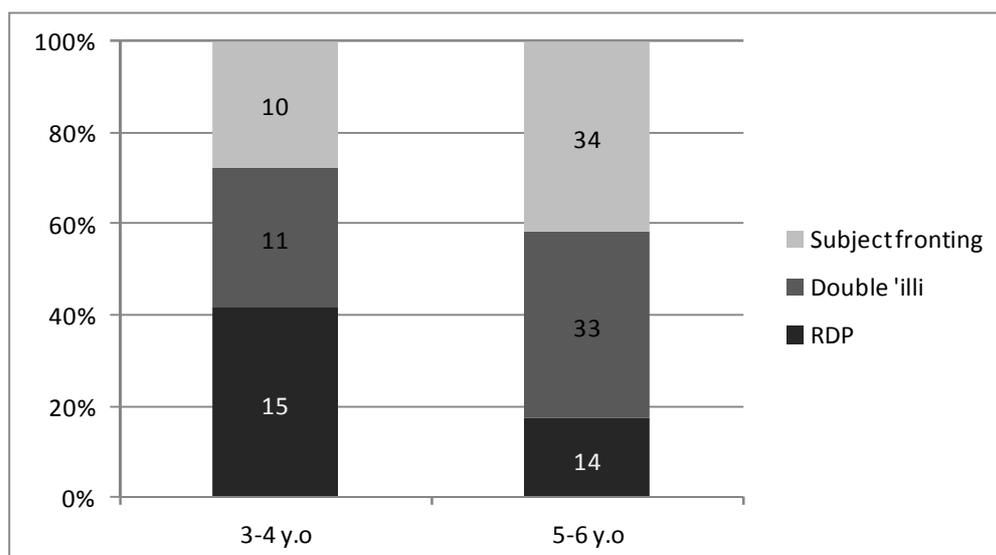
4.2.2 Errors in Elicited Production with Props

Figure 4. Comparison between the child groups in frequency of usage of the different types of errors in the elicited production with props

Unlike in the first experiment where the 3-4 year olds make less RDP errors than the 5-6 year olds (7 vs. 10 by the 5-6 year olds), in this experiment, the 3-4 year olds make almost the same number of RDP errors as the 5-6 year olds (15 vs. 14 by the 5-6 year olds). Moreover, in this experiment, in both groups, children make almost equal numbers of subject fronting and double `illi errors (10 and 11 double `illi respectively in the 3-4 year-old group; 34 and 33 double `illi respectively in the 5-6 year-old group).

4.2.3 Summary of Results

PA speaking children are correct in 80% of their relative clauses with subject relatives being easier than non-subject relatives. The production errors made by the children in the different groups were mainly of three types (mentioned in the beginning): the familiar **RDP error** (1), and two unique errors, **Subject Fronting** (2), and **doubling of** the RC complementizer ***illi*** (3). The youngest and the older children had less ('unique') errors than the intermediate group (5-6 years old)**, resulting in a U-shape**.

    In light of the above, the question is how the 'unique' errors, as well as the familiar ones, especially the RDP error, are best accounted for. This question might be broken up into more specific questions:
-      How are RCs derived (represented) by the youngest kids?
-      What is the source of the 'unique' errors?
-      What happens around the age of 5? Why does the error rate rise?

5 Discussion

From the syntactic perspective, figuring out the nature and the origin of the variable in the RCs of one's language is probably the most important aspect in the acquisition of these structures. In PA this task is especially difficult because children are presented with conflicting evidence. On the one hand, PA RCs (modulo subject relatives) invariably include a resumptive element, suggesting a binding derivation (Shlonsky 1992). However, the distribution of RDPs patterns with the intrusive pronoun languages, where RCs are derived via movement (Aoun & Choueiri 1996). On the other hand, the phonetic string of both derivations is identical. This is so because, RCs can be formed either via movement of *pro* to spec-CP, or via base-generating *pro* in spec-CP (20) (Aoun & Choueiri 1996).

(20) a. [$_{DP}$ `iz-zara:fi [$_{CP}$ *pro*$_i$ *illi*$_{[\text{+def}], [\text{φ}], [\text{Case}]}$ l-walad ḥaẓan-ha$_i$ t$_i$]]   movement
    b. [$_{DP}$ `iz-zara:fi [$_{CP}$ *pro*$_i$ *illi*$_{[\text{+def}], [\text{φ}], [\text{Case}]}$ l-walad ḥaẓan-ha$_i$ *pro*$_i$]]   binding

Moreover, the moving/binding element in Arabic RCs is *pro*, rather than the kind of element (e.g. operator) commonly assumed in the analyses of RCs (see section 2).

5.1 Accounting for the 'Unique' Errors

5.1.1 Children's Derivations Underlying the 'Unique Errors'

We propose that since PA RCs invariably include a resumptive clitic, children take this element to function as the variable of a RC (rather than being related to a null variable, *pro*), formed via coindexation between the head of the relative and resumptive clitic (21), much like in Labelle's (1990) approach (2.4).

(21) `iz-zara:fi$_i$ [$_{CP}$ ***illi*** [$_{TP}$ l-walad ḥaẓan-ha$_i$]]
    the-giraffe   that   the-boy hugged-it
    'The giraffe that the boy hugged'

The representation in (21) is fully licit as far as the semantics of RCs is concerned, but it is problematic for the syntactic component. Recall that in PA, *illi* is associated with formal features (definiteness, Case, and φ-features). Thus, leaving spec-CP empty, will result in a derivation with unchecked formal features.

Assuming that children are aware of the requirements of all the grammatical components, we suggest that both 'unique' errors, **subject fronting** and **double *illi***, are due to children's attempt to preserve the derivation in (21), while taking care of feature-checking.

The subject fronting error results from moving the 'closest' DP, the subject of the RC, to spec-CP, in order to check the features of *illi*, as schematized in (22)**.**

Subject movement for feature checking

(22) `iz-zara:fi$_i$ [$_{CP}$ l-walad$_k$ *illi*$_k$ [$_{TP}$ t$_k$ ḥazan-ha$_i$]]   Subject Fronting

The double *illi* error surfaces because of the following. The representation in (22) satisfies the requirement of feature checking of *illi*, but it creates a structure where the modification relation is "obscured". The relativizer is related to the subject of the RC ('the boy') rather than to the head of the relative ('the giraffe'). To amend the configuration in (22), children project another DP above the original one (bold), headed by (another) *illi,* in whose specifier the head of the relative (the modified DP) is moved (23), checking *illi'*s features and restoring the modification.

Relative head movement (restoring the modification)

(23) [[$_{DP}$ `iz-zara:fi$_j$ [$_D$ *illi*$_j$]] [$_{DP}$ t$_j$] [$_{CP}$ l-walad$_k$ *illi*$_k$ [t$_k$ ḥazan-ha$_j$]]]]   Double *illi*

Subject movement (for checking)

5.1.2 Accounting for the Error Rate Pattern (U-shape)

The above three representations schematize a developmental trend, not necessarily attested for all children. The youngest children are not fully aware yet of the need to check *illi'*s features (because of the morpho-syntactic peculiarity of *illi*). Consequently, they produce RCs as in (21). The few errors that are attested are due to the more advanced children in this age group, who start attempting feature-checking of *illi* via subject fronting, because they do not posit *pro* viewing the resumptive clitic as the variable of the RC.

At the intermediate stage, many children are aware of the need to check the features of *illi*, but among them are those who still do not posit *pro*. Hence, the rate of the 'unique' errors rises. By the final stage, the rate of errors goes down again, but this time because most of the children have already fully mastered the derivation of RCs in PA, namely their derivations feature *pro* in spec-CP, as the result of movement or base generation, like in adult grammar.

5.2 Accounting for the Distribution of RDPs: The 'Matching Analysis' (Sauerland, 1998) Revisited

As we have seen, none of the reviewed analyses accounts for the distribution of the RDPs in a satisfactory manner. This type of error is found in the acquisition of RCs in a great variety of

languages, among them PA, and should clearly be accounted for. We propose that it can be accounted for using the 'matching analysis' of RCs (Sauerland 1998, 2000), schematized in (24).

(24) the [book] [$_{CP}$ [Op ~~book~~]$_i$ that Lisa bought [$_{DP}$ t$_i$]]   adult derivation

Our assumption is that at the initial stages of the acquisition of RCs, children are not fully aware that the whole complex, the copy and operator should move. Hence, they move only the operator, leaving the copy in situ (25).

(25) the book [$_{CP}$ Op$_i$ that Lisa bought [$_{DP}$ t$_i$ book]]   RDP

RDPs do not occur in subject or genitive positions, because moving the operator out of these DPs (bold) would violate (some version of) the Condition on Movement; the genitive/subject DP, namely the DP enclosing the operator (and the copy), is arguably the specifier of the whole DP (e.g. 'boy's brother', 'boy's hat', 'who boy'), namely not a complement, and hence a barrier for movement (26):

(26) a. genitive in subject position
     *the boy [whose$_i$/Op$_i$ [$_{TP}$ [$_{DP}$ [**$_{DP}$** t$_i$ boy('s)] brother]$_k$ likes Lisa]]

   b. genitive in object position
     *the boy [whose$_i$/Op$_i$ [$_{TP}$ [$_{DP}$ I found [$_{DP}$ [**$_{DP}$** t$_i$ boy('s)] hat]$_k$]]]

   c. subject position
     *the boy [who$_i$ [$_{TP}$ [**$_{DP}$** t$_i$ boy] likes Lisa]]

Given the existence of a movement derivation in the formation of PA RCs (Aoun & Choueiri 1996), this proposal is fully applicable to the RDPs in the acquisition of PA.[6] The copy of the relative head, rather than *pro,* and the Op are base generated, but only Op moves to spec-CP (27).

(27) `iz-zara:fi [$_{CP}$ Op$_i$ *illi* [$_{TP}$ l-walad ḥaẓan [$_{DP}$ [t$_i$] z-zara:fi]]]   RDP in PA
     the-giraffe   that   the-boy hugged   the-giraffe

Note that the absence of the verbal clitic in these productions supports our claim that children view the clitic, rather than *pro*, as the variable of the RC; once an alternative, i.e. a lexical DP is present, the clitic is absent. Moreover, the proposal correctly predicts that despite the fact that in (27) the features of *illi* remain unchecked, children do not attempt subject fronting, because spec-CP is occupied by the operator.

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[6] It is, however, not applicable to RDPs in the acquisition of Hebrew. This is so because RDPs in Hebrew RCs seem to occur mainly in locative PPs. See Armon-Lotem at al. (2006) where this specific distribution of RDPs in the acquisition of Hebrew RCs is argued to result from a binding derivation, whereby the base-generated Op binds the whole locative PP, rather than the DP embedded in the PP.

5.3 Conclusion

Based on elicited production of children acquiring PA RCs, we discovered errors never documented in the acquisition of RCs across languages, and set up to account for them, as well as for the familiar RDP error. We accounted for the RDP error across languages, including PA, as movement of the relative operator without the copy of the relative head, under the 'matching analysis' (Sauerland 1998, 2000). If on the right track, our proposal supports Aoun & Choueiri's (1996) claim that RCs in Arabic can be derived via movement, which is crucially involved in the account of the RDP error.

As to the 'unique errors', we proposed that the initial stages of RC acquisition children might identify the resumptive clitic, rather than *pro*, as the variable of the RC. Since this element cannot be moved to spec-CP, subject fronting is attempted, in order to check the features of *illi*, (possibly) complemented by the double *illi* derivation restoring the modification relation. Once the function of the resumptive clitic as 'merely' the licensor of the independent null element, *pro,* is acknowledged, the adult derivation involving movement of *pro* or binding thereof can be implemented.

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