Last resort and no resort

Resumptive pronouns in Hebrew and Palestinian Arabic hearing impairment

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Whereas both Hebrew and Palestinian Arabic use resumption in object relatives, children with hearing impairment show completely different patterns of comprehension and production of object relatives in the two languages. This research compared the performance in the two languages, connecting the differences in the linguistic properties of resumption in the two languages to the observed differences in performance. In Hebrew, the resumptive strategy is optional in object relatives, and not always preferred. Young children produce many object relatives with a resumptive pronoun, but this tendency changes with age, and adults produce mainly object relatives without a resumptive pronoun. The assessment of relative clause indicates that Hebrew-speaking children with hearing impairment produce considerably more resumptive pronouns in object relatives than hearing children their age. In comprehension, resumptive pronouns provided an important clue to enhance the comprehension of relative clauses – Hebrew speaking children with hearing impairment understood object relatives with a resumptive pronoun significantly better than object relatives without a resumptive. In Palestinian Arabic, where resumptives are obligatory in object relatives, Palestinian Arabic-speaking hearing impaired children showed a completely different pattern from the Hebrew-speaking children. Although all object relatives were presented to them in comprehension with a resumptive pronoun, the presence of a resumptive pronoun did not help in the comprehension of relative clauses, and their comprehension of object relatives was very impaired. In production they were able to produce very few object relatives compared to their age-matched controls and compared to the Hebrew speakers. We provide an analysis for the different behavior between the two languages on the basis of the different syntactic properties of the resumptive pronouns. Resumptive pronouns are strong pronouns in Hebrew, and clitics in Palestinian Arabic. We assume that hearing impaired children have a general deficit in syntactic movement – which is independently motivated – and find additional support in the experiments presented in the paper. Following Hornstein (2001) and subsequent work, we contend that resumptive pronouns are a last resort strategy to rescue configurations in which movement is illegitimate. Since the hearing impaired
children have a problem with movement, their pervasive use of resumptive pronouns in Hebrew follows straightforwardly. In Arabic, however, resumption is not helpful in salvaging derivations with movement, because the pronoun must enter the derivation already in the numeration, given its clitic properties. As such, it acts as a theta-role bearer and not as a last resort strategy to salvage an otherwise crashing derivation. As a result, whereas the resumptive pronoun in Hebrew functions as last resort for comprehension and production, the presence of a clitic in Palestinian Arabic does not provide any resort in either comprehension or production of object relatives, because it is only superficially similar to the resumptive strategy in Hebrew.

1. Introduction

Resumptive pronouns are a strategy used in movement configuration in several languages. Although they may occur in the same superficial position, they can carry very different properties across languages. The current study compares resumptive pronouns in Hebrew and Palestinian Arabic in the context of relative clauses in hearing impaired populations.

Hebrew allows resumptive pronouns in object relative clauses optionally. In Palestinian Arabic, resumptive pronouns are obligatory in object relatives. Another difference between the resumptive pronouns in the two languages has to do with their status in the typology of pronominal forms (Cardinaletti & Starke 1999): whereas Hebrew resumptive pronouns are strong pronouns, Palestinian Arabic resumptives are clitics (see Examples 1 and 2 for Hebrew and Palestinian Arabic, respectively).

(1) tar'i li et ha-safta she-ha-yalda nishka (ota)
show me acc the-grandma that-the-girl kissed (her)

(2) fargini es-sit elli el-bint basat-*(ha)
show-me the-grandma that the-girl kissed-*(her)
Show me the grandma that the girl kissed.

Linguistic literature has dealt extensively with relative clauses that include resumption, and how they are derived. Researchers agree that, when movement is blocked, only the resumption strategy is available. This is most evident within syntactic constructions known as Strong Islands (Chomsky 1986; Ross 1967), out of which movement is never possible. The only option available in these cases, in any language allowing for it, is resumption.

Hornstein (2001) suggests an intriguing possibility with respect to resumptive pronouns (and in fact pronouns in general). He suggests that pronouns are not, as is widely assumed, part of the array of lexical elements selected at the beginning of each syntactic
derivation. Rather, they are inserted after the syntactic component during the course of the computation, to save derivations that would otherwise crash. Relativization into a Strong Island would presumably require movement which is syntactically impossible (even for unimpaired speakers). In such cases, the computational system would recognize that the derivation in its present form would be illicit, and insert a pronoun in place of the launching-site of movement, within the Strong Island. The derivation would no longer violate the conditions on movement, and the computational system could continue.

In other words, when movement is blocked in sentence production of unimpaired speakers, resumptive pronouns are recruited. Children with hearing impairment who are orally trained and do not receive sufficient exposure to language, either sign language, or spoken language with the aid of early fitted hearing aids, have a deficit in sentences that are derived by Wh-movement.

Many studies indicated that the syntactic abilities of children with hearing impairment who are orally trained differ from those of hearing children. In the realm of speech production, studies showed that children with hearing impairment produce ungrammatical sentences (Friedmann & Szterman 2006; Geers & Moog 1978; Pressnell 1973). Passives, Wh questions, and relative clauses were found to be specifically impaired in the comprehension and speech production of children with hearing impairment (Berent 1988; de Villiers 1988; de Villiers, de Villiers & Hoban 1994; Friedmann & Szterman 2006; Geers & Moog 1978; Quigley, Smith & Wilbur 1974; Quigley, Wilbur & Montanelli 1974; Power & Quigley 1973; Szterman & Friedmann 2003, 2007; Nave, Szterman & Friedmann 2009; Wilbur, Goodhart & Montandon 1983).

This study compared the comprehension and production of object relative clauses by Hebrew and Palestinian Arabic speaking children with hearing impairment. The aim of the study is to check whether resumptive pronouns are produced and comprehended, and whether they facilitate the performance in relative clauses. We further aimed at exploring whether the different status of the resumptive pronouns in the two languages (strong vs. clitic) yield crosslinguistic differences in comprehension and production.

2. Participants

2.1 Hebrew-speaking participants

The Hebrew-speaking participants were 30 children with hearing impairment from birth. (The children reported here are the children reported in Friedmann & Szterman 2006 and the children reported in Friedmann, Szterman & Haddad-Hanna, in press). Their age range was 7;6–12;4 years (M = 9;1, SD = 1;2). They were 17 girls and 13 boys.
All of them were trained only orally. They had moderate to severe binaural hearing loss, and for none of them was a sudden loss of hearing reported. At the time of testing, they were studying in primary schools in hearing classes with inclusive schooling using oral education, with additional classes of teachers of the deaf. All the participants constantly wore hearing aids: 22 children used binaural hearing aids, and 8 used a cochlear implant. Subject files included no other disabilities, and in all cases neither parent was deaf, and they all came from families that spoke only Hebrew.

The control group included hearing children with typical language development, no neurological or developmental difficulties, and no socio-emotional behavior problems. They were studying in public schools serving a middle class population, similarly to the participants with hearing impairment. The hearing control group consisted 14 fourth graders aged 8;10–9;6 years (M = 9;4).

2.2 Palestinian Arabic-speaking participants

The Palestinian-Arabic-speaking participants were 21 children and adolescents with hearing impairment aged 9;6–21;0 years (M = 14;6), 16 girls and 5 boys. All of them had binaural hearing loss, all of them except one were reported to have congenital hearing loss, and one lost her hearing at the age of 3 months. All the participants were trained orally, and all but one studied in regular schools (8 of them vocational schools), in hearing classes with inclusive schooling using oral education, with an individualized educational plan, and with additional classes by teachers for the deaf. One participant studied in a special education class. In all cases, neither of the parents was deaf. Nineteen of The participants lived in the Galilee, in the north of Israel, and were minimally exposed to Hebrew, and two lived in a city in central Israel, where they spoke Hebrew in addition to Arabic. Fifteen used binaural hearing aids routinely, 2 used a cochlear implant, and 4 preferred not to use any type of hearing device, although medically they needed one.

The control group included Palestinian Arabic-speaking children and adolescents with normal hearing and normal language development whose age average was approximately 2.5 years younger than that of the children with the hearing impairment. The control group included 13 participants, 8 boys and 5 girls. Their age range was 9;0–17;9 (M = 12;7). None of the children in the control group had any report of neurological developmental difficulties or socio-emotional problems.

3. The comprehension of relative clauses

3.1 Method

The participants’ comprehension of relative clauses in the two languages was assessed using a sentence-picture matching task (see Friedmann & Szterman 2006; Friedmann &
Novogrodsky 2004). The participant heard a semantically reversible sentence read by a native speaker of Hebrew, and saw two pictures on the same page, one above the other (see Figure 1); In one picture the roles matched the sentence; in the other picture the roles were reversed. The participant was asked to point to the picture that correctly described the sentence.

![Figure 1](image_url)

**Figure 1.** An example for a picture used in the sentence-picture matching task

3.2 Material

3.2.1 Hebrew

The Hebrew test included 40 sentences: 20 subject relatives and 20 object relatives (examples (3) and (4), respectively, which appeared with Figure 1). All verbs were agentive transitive. All the sentences were semantically reversible so that the comprehension of the meaning of the words alone cannot assist in the interpretation of the sentences. The figures in every picture were always of the same gender and number (an elephant and a lion, which are both masculine, a girl and a female giraffe, a little boy and a grandfather, etc.), to preclude an agreement cue on the verb (as verbs in Hebrew agree with the subject in gender, number, and person). Every picture pair was
presented twice: once with a subject relative and once with an object relative. Sentences were randomly ordered so that there was no sequence of more than two sentences of the same type, the correct picture in each pair was also randomized: the correct picture was sometimes the top picture, and sometimes the bottom picture.

(3) Hebrew subject relative
tare li et ha-pil she-martiv et ha-arye.
Show me ACC the-elephant that-wets ACC the-lion
Show me the elephant that wets down the lion.

(4) Hebrew object relative without a resumptive pronoun
tare li et ha-pil she-ha-arye martiv.
Show me ACC the-elephant that-the-lion wets
Show me the elephant that the lion wets down.

3.2.2 Palestinian Arabic
The Palestinian Arabic test included 60 sentences – 20 subject relatives and 40 object relatives of the two subject-verb orders that are available in Palestinian Arabic: 20 in SV order, and 20 in VS order (Examples 5–7).

(5) Palestinian Arabic Subject relative
fargini el-fil elli ūam-berasheq el-asad.
show-me the-elephant that present-wets the-lion
Show me the elephant that is wetting down the lion.

(6) Palestinian Arabic Object relative SV (with a resumptive clitic)
fargini el-fil elli el-asad ūam-berashq-o.
show-me the-elephant that the-lion present-wets-him
Show me the elephant that the lion is wetting down.

(7) Palestinian Arabic Object relative VS (with a resumptive clitic)
fargini el-fil elli ūam-berashq-o el-asad.
show-me the-elephant that pres-wets-him the-lion
Show me the elephant that the lion is wetting down.

3.3 Results
3.3.1 Hebrew
The Hebrew-speaking children with hearing impairment showed a considerable difficulty in the comprehension of object relatives, and chose the matching picture only 66% of the time (SD = 21%). These participants comprehended object relatives significantly poorer than the age-matched control group, who understood 94% of the object relatives correctly, t(42) = 4.71, p < .0001. As shown in Figure 2, the hearing impaired participants did not show any difficulty in the comprehension of subject relatives – they performed well on subject relatives, and not differently from the control group, t(42) = 1.10, p = .28. They understood subject relatives significantly better than object relatives, t(29) = 7.70, p < .0001.
When the individual performance was tested, the comparison of each hearing impaired individual to the control group showed that 23 of the 30 participants performed significantly poorer on object relatives than the control group ($p < .05$, using Crawford & Howell’s 1998 $t$-test). In the subject relatives, only 3 participants performed significantly poorer than the control group. Seventeen of the hearing impaired participants performed at chance on object relatives, indicating a guessing pattern. All the participants performed significantly above chance level on subject relatives.

### 3.3.2 Palestinian Arabic

The Palestinian Arabic-speaking children with hearing impairment showed severe difficulty in the comprehension of object relatives although all of them included a resumptive clitic. As seen in Figure 3, The comprehension of both types of object relatives was very poor, and significantly poorer than the control group, both for the SV object relatives, $t(32) = 3.37, p = .002$, and for the VS object relatives, $t(32) = 5.56, p < .0001$. The hearing impaired participants performed relatively well on the subject relatives, though they performed marginally poorer than the control group on this structure as well, $t(32) = 2.01, p = .05$. 

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**Figure 2.** Comprehension of relative clauses: Hebrew-speaking hearing impaired and the control group

**Figure 3.** Comprehension of relative clauses: Palestinian Arabic-speaking hearing impaired and the control group
The performance of the participants with hearing impairment on object relatives was significantly poorer than on subject relatives, both for SV object relatives, $t(20) = 3.48$, $p = .002$, and for VS object relatives, $t(20) = 6.13$, $p < .0001$. Although both types of object relatives were comprehended poorly, the performance on VS object relatives was even significantly poorer than on the SV object relatives, $t(20) = 4.96$, $p < .0001$.

The analysis of the performance of each hearing impaired participant indicates that 7 of the 21 participants performed significantly poorer than the control group on subject relatives; 14 performed significantly below the controls on the SV object relatives, and 18 performed significantly below the controls on the VS object relatives (using Crawford & Howell’s $t$-test, 1998). The comparison to chance level indicates that whereas all but one participant performed significantly above chance on the subject relatives, 8 of the 21 participants performed at chance in the comprehension of SV object relatives, and 11 performed at chance on the VS object relatives, indicating a guessing pattern. All the participants in the control group performed above chance level on all sentence types.

3.3.3 The comprehension of Hebrew object relatives with a resumptive pronoun
A crucial finding from the Hebrew-speaking participants pertained to their ability to comprehend object relatives that included a resumptive pronoun at the object position. Eight of the Hebrew-speaking children with hearing impairment were tested also on the comprehension of object relatives with the optional resumptive pronoun, using the same task of sentence-picture matching, and the same pictures (Friedmann, Novogrodsky, Szterman & Preminger 2008). The addition of a resumptive pronoun in object position in object relative clauses significantly improved their comprehension, $t(7) = 3.52$, $p = .01$. Whereas the 8 Hebrew-speaking children with hearing impairment who were tested on both object relatives with and without a resumptive pronoun were only 73% correct on object relatives without a resumptive pronoun, they were 94% correct when the object relative included a resumptive pronoun in object position. All but one of the eight participants performed between 95% and 100% correct on the object relatives when they appeared with a resumptive pronoun in object position.

3.3.4 A direct comparison between Hebrew and Arabic
The direct comparison of the performance of the Hebrew-speaking and the Palestinian Arabic-speaking children with hearing impairment on exactly the same task, presented in Table 1, indicated that there was no difference between the comprehension of object relatives without a resumptive pronoun in Hebrew, and the comprehension of object relatives with a resumptive clitic in Palestinian Arabic (the comparison was of the identical structure which was tested in the two languages, SV order), $t(49) = 0.79$, $p = .43$. The comparison of the performance on object relatives with a resumptive in the two languages indicated that the Hebrew speakers performed significantly better
than the Palestinian Arabic-speakers when they were both presented with an object relative with a resumptive, \( t(27) = 2.08, p = .02 \).

Table 1. Performance in sentence-picture matching test in Hebrew and Palestinian Arabic

<table>
<thead>
<tr>
<th>Language</th>
<th>Subject relative</th>
<th>Object relative no resumptive pronoun, SV order</th>
<th>Object relative with resumptive pronoun, SV order</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hebrew</td>
<td>Hearing impaired</td>
<td>95%</td>
<td>94%</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>99%</td>
<td>94%</td>
</tr>
<tr>
<td>Palestinian</td>
<td>Hearing impaired</td>
<td>94%</td>
<td>72%</td>
</tr>
<tr>
<td>Arabic</td>
<td>Control</td>
<td>99%</td>
<td>99%</td>
</tr>
</tbody>
</table>

These data are consistent with other comprehension data from Hebrew and Palestinian Arabic. Hebrew-speaking children fail to understand other structures that are derived by Wh-movement and that do not involve resumptive pronouns, such as object *which* questions (Nave, Szterman & Friedmann 2009), and topicalized OVS structures (Friedmann & Szterman 2006). Palestinian Arabic-speaking children also fail to understand other Wh-movement structures that include a resumptive clitic – object *which* questions and topicalization structures (Haddad-Hanna & Friedmann 2009).

4. The production of relative clauses

These results of the comprehension of object relatives in the two languages indicate, on the one hand, a severe difficulty in the comprehension of sentences that are derived by Wh movement in both languages, and on the other hand, a crucial difference between the languages with respect to the comprehension of object relatives with resumptives.

How do these children produce such sentences? Would resumptive pronouns be recruited as a last resort? Will they show the same pattern of production in the two languages? This experiment assessed the production of relative clauses in Hebrew- and Palestinian Arabic-speaking children with hearing impairment using a sentence elicitation task.

4.1 Method

Relative clauses were elicited using a preference question. The children were presented with two options and had to choose which one they prefer. The task was constructed in such a way that the choice would have to be formed as a relative clause (BAMBI ADIF test, Novogrodsky & Friedmann 2006; Friedmann & Szterman 2006). There were 12 questions per participant, 6 eliciting subject relatives and 6 eliciting object relatives. The order of the subject and object relative target sentences was randomized.
The questions that targeted subject relatives described two children (two boys for a male participant, two girls for a female participant), performing two actions; the questions that targeted object relatives described two children who are the themes of two actions performed by two different figures. After each presentation of options, the participant was asked to state which child s/he would rather be, starting with “I would rather be the child...” or with “The child ….” See example (8) for the elicitation of Hebrew object relatives, and (9) for the Palestinian Arabic object relatives.

In the current presentation of results we only focus on the target object relatives, which are the crux of the difference in resumptive pronouns between Hebrew and Palestinian Arabic. The full report of results can be found in Friedmann et al. (2008) for the Hebrew production, and in Haddad-Hanna and Friedmann (in preparation) for the Palestinian Arabic production.

(8) Hebrew elicitation of object relative:

Yesh shtei yeladot. Ha-sha’on hame’orer me’ir yalda axat, There are two girls. The alarm clock wakes up one girl, ve-ha-aba me’ir yalda axat. and the father wakes up one girl.

Eizo yalda hayit ma’adifa lihiot? Which girl would you rather be?

Target answer: (Hayiti ma’adifa lihiot) ha-yalda she-aba me’ir. (would prefer to-be) the girl that father wakes up.

(9) Palestinian Arabic elicitation of object relative:

Fih bintein, as-sa’a betfaye’ el-bent el-?ula, wel-?abo There are two girls. The alarm clock wakes up one girl, and the father bifaye’ el-bent et-tanie. wakes up the girl the other.

Ay bent bethebi tkuni? Which girl would you rather be?

Target answer: (Baheb akun) el-bent elli as-sa’ a betfaye’-ha (love-1sg will-be-1sg) the girl that alarm clock wakes up her

(I would rather be) the girl who the alarm clock wakes up.

The participants in this study were 14 of the Hebrew-speaking hearing-impaired participants, and 17 of the Palestinian Arabic hearing-impaired children who participated in the comprehension experiment. The Hebrew-speaking control participants were 28 children without language impairment aged 7;5–11;0 years (M = 9;0), and the Palestinian Arabic control group included 12 participants, 8 girls and 4 boys with normal hearing. Their age average was more than two years younger than the hearing impaired group, aged 6;6–17;9 (M = 12;3, SD = 0;3).
4.2 Results

This task showed that in the two languages, the children with hearing impairment had considerable difficulties producing object relatives, as shown in Table 2. The hearing-impaired speakers of the two languages crucially differed, however, with respect to their last resort: whereas the Hebrew-speaking children heavily used resumption as the leading strategy to produce object relatives, and 42% of their responses were object relatives with a resumptive pronoun, the Arabic-speaking participants produced only 14% object relatives, all of them but one were with a resumptive clitic (see Table 2).

Another way to look at this difference is by looking at the rate of target object relatives compared to the age-matched participants. The Hebrew speakers produced in only 19% of their responses the more adultlike object relative, without a resumptive pronoun, and the Palestinian Arabic produced only 14% adultlike object relatives. This look at the data shows the very severe difficulty in both languages in the production of object relatives. However, when comparing the general rate of production of object relatives, including object relatives both with and with resumptives, the Hebrew-speaking children produced significantly more object relatives, 61%, than the Palestinian Arabic-speaking children, who only had 14% such sentences ($\chi^2 = 44.74, p < .0001$).

It seems that resumptive pronouns, which clearly served as a salvaging strategy for the production of object relatives in Hebrew, were not helpful for the Palestinian Arabic speakers, and the Palestinian Arabic-speaking children with hearing impairment turned to other strategies that involved avoiding object relatives completely, by producing subject relatives or simple sentence, by don’t know responses, and by ungrammatical sentences.

Notice that in Hebrew, of the 51 grammatical object relative sentences the participants with hearing impairment produced, 69% (35/51) were produced with a resumptive pronoun in object position. Although resumptive pronouns in object position in object relatives are grammatical in Hebrew, they are characteristic of children acquiring Hebrew, in kindergarten ages – much younger than the children with hearing impairment who were tested in the current study (Friedmann, Belletti & Rizzi 2009; Günzberg-Kerbel, Shvimer & Friedmann 2008; Varlokosta & Armon-Lotem 1998). Of the 158 grammatical object relative clauses the children in the control group produced, only 32% (50/158) were produced with a resumptive pronoun. This difference between the number of sentences with and without resumptive pronouns (number of object relatives with RP minus number of object relatives without RP) was significantly larger in the hearing impairment group than in the control group, $t(40) = 3.39, p = .0008$ (see Friedmann et al. 2008 for details and discussion).

Friedmann et al. (2008) also report the elicitation of relative clauses in Hebrew using a picture description task. In this task too, a clear deficit in the production of object relatives was witnessed; when the children with hearing impairment did
Table 2. Distribution of responses for target object relatives in the preference elicitation task

<table>
<thead>
<tr>
<th></th>
<th>Target adult object relative</th>
<th>Object relative with optional RP</th>
<th>DP in object position (doubling)</th>
<th>Grammatical subject relative</th>
<th>Ungrammatical relative clause</th>
<th>Simple or Sentential complement</th>
<th>“don’t know” response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hebrew</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hearing impaired</td>
<td>14 participants 84 sentences (without RP)</td>
<td>19% (16)</td>
<td>42% (35)</td>
<td></td>
<td></td>
<td></td>
<td>10% (8)</td>
</tr>
<tr>
<td>Control</td>
<td>28 participants 168 sentences</td>
<td>64% (108)</td>
<td>30% (50)</td>
<td>5% (9)</td>
<td>1% (1)</td>
<td></td>
<td>0% (0)</td>
</tr>
<tr>
<td>Palestinian Arabic</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Hearing impaired</td>
<td>17 participants 102 sentences (with RP)</td>
<td>14% (14)</td>
<td>–</td>
<td>20% (20)</td>
<td>17% (17)</td>
<td>Incl 1 rp om, 2 rp error</td>
<td>18% (18) 8% (8)</td>
</tr>
<tr>
<td>Control</td>
<td>12 participants 72 sentences</td>
<td>100%</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
*RP = resumptive pronoun
produce object relatives, they tended to produce them with resumptive pronouns (58% of the object relatives were produced with a resumptive pronoun, compared with only 17% object relatives that were correctly produced without a resumptive pronoun). In other cases, the participants either produced an ungrammatical relative clause, or refrained from producing them by producing a simple or conjoined sentence, or a subject relative instead of an object relative.

5. Discussion

The results of comprehension of relative clauses by the two groups of participants reveal an important difference between Hebrew and Arabic. Whereas the Hebrew-speaking participants showed improved comprehension of object relatives with a resumptive pronoun compared to object relatives without a resumptive pronoun, the resumptive strategy was not helpful for the Palestinian Arabic speakers. All the object relatives the Arabic speakers heard included the obligatory resumptive pronoun, and yet the performance was poorer than what was found for Hebrew.

The production results also show the preference for resumptive pronouns in Hebrew. The Hebrew-speaking children with hearing impairment produced a significantly higher rate of resumptive pronouns than hearing children their age. As for Palestinian Arabic speaking children, in the few relative clauses they produced, there was no omission of resumptive pronouns, which indicates that, unlike what was observed in comprehension, resumptive pronouns are not a problem per se for these children.

In order to understand this difference, it is important to recall the specific characteristics of resumptive pronouns in each of the languages. As described in the introduction, resumptive pronouns in Hebrew are strong pronouns, whereas they are clitics in Palestinian Arabic. We contend that this difference is the source of the differential performance in relatives in the two languages.

Hornstein (2001) proposes that pronouns are a last resort strategy for avoiding crashing derivations. According to this analysis, pronouns are inserted only when movement is not a legitimate alternative. For instance, in the establishment of disjoint reference, the sentence *John saw him* requires the insertion of a pronoun, because there is no convergent alternative derivation involving movement of the object to another position. On the contrary, reflexive constructions may be interpreted as object-to-subject movement, and reflexives are not considered elsewhere pronouns. The same line of analysis applies to the rescue of derivations involving extraction from an island (see also Grolla 2005). In languages with resumptive pronouns, these appear in what would otherwise be the trace of movement from an island. Example (10) demonstrates this in a Hebrew relative clause.
Hornstein’s claim is therefore that resumptive pronouns are inserted post-syntactically, at the PF component and are not part of the initial array of lexical items contained in the numeration.

The crucial difference between resumptive pronouns and clitics is that clitics are functional elements (Kayne 1975, 1991). As such, they undergo movement to the functional domain and must be licensed in the syntactic component by the establishment of a relation with a functional head. This has consequences on their status as resumptive pronouns. Unlike strong pronouns, one cannot assume that clitics are inserted only at PF, because this would prevent their syntactic licensing by a functional head. As such, clitics must enter the initial numeration. If we think of the case of Palestinian Arabic in particular, there is additional reason to consider that clitics enter the numeration. Palestinian Arabic has clitic doubling, as shown in (11), and this may suggest that clitics are not true pronominal forms, but rather the markers of argumenthood, as defended in Torrego (1998).

(10) ze ha-yeled she-Dani mexabev et ha-‘isha she-ciyyra oto
this the-child that-Dani likes ACC the-woman that-drew him
This is the child that Dani likes the woman who drew him.

As theta-role bearers, the clitics cannot be inserted post-syntactically, because this would compromise the interpretation of the sentences.

If we assume that children with a hearing impairment have a deficit in the interpretation of structures with Wh-movement, we are now able to account for the different patterns observed for Hebrew and Palestinian Arabic. Let us start with Hebrew. As defended in Friedmann and Szterman (2006), these children have a problem with Wh-movement. If resumptive pronouns are a last-resort strategy to solve problems in movement, it is expected that resumptive pronouns are produced more often in populations with such a deficit. This straightforwardly accounts for the higher rate of resumptive pronouns in Hebrew relative clauses produced by children with hearing impairment than by the control group. As for comprehension, the same line of analysis applies. The presence of a resumptive pronoun helps children with hearing impairment, since it provides the cue for repairing the failed Wh-movement. On the contrary, the absence of a resumptive pronoun provides no cue for the interpretation of the chain created by movement.

Let us now consider the Palestinian Arabic pattern. As we mentioned above, resumptive pronouns were produced whenever there were relative clauses, signaling that, like in Hebrew, children do not have problems generating structures with
resumptive pronouns. However, in the comprehension, clitics did not help. This follows from the different status of clitics and strong pronouns. As just mentioned, in Palestinian Arabic, one cannot assume that clitics are inserted post-syntactically, since they would not be licensed. As such, their presence is the consequence of a derivation that contains them in the numeration, and they are theta-role bearers and not the product of a last-resort strategy to rescue the failed movement operation. As such, children are not able to rely on clitics in order to interpret Wh-movement.

Our analysis predicts that there are crosslinguistic differences between the two languages in the production of object relatives as well. The difficulties children with hearing impairment have with syntactic movement make the creation of syntactic movement dependencies, like the one involved in the production of object relatives, particularly hard. However, in Hebrew the resumptive strategy is available salvaging the otherwise unavailable movement. For this reason, Hebrew hearing-impaired children are able of producing some object relatives. Note that, when the participants produce a relative clause, they usually do so resorting to resumptive pronouns, clearly overusing them in Hebrew. This follows from the absence of an alternative legitimate strategy to create a syntactic dependency.

This is different from what we find in Palestinian Arabic. As argued before, resumptive clitics are not elsewhere elements inserted post-syntactically to rescue the crashing derivation, but argument markers inserted in the numeration. As such, they cannot act as elements that provide a valid alternative to movement. This different nature of resumptives in Palestinian Arabic explains why we find such a low number of object relatives in production in this language. Since they are not elsewhere elements, there is no last resort strategy to generate a relative in the language, leading to an exceptionally low rate of object relative production.

In summary, the crucial difference between resumptive pronouns in the two languages depends on their independently motivated properties as last-resort strategies for salvaging movement, which are only relevant for strong pronouns, and not for clitics that enter clitic-doubling configurations.

Thus, the findings on resumptive pronouns fit in the general picture of language deficit in hearing impairment in the following way: individuals with hearing impairment who were not exposed to language input in the critical period for language acquisition have a deficit in Wh-movement. The same basic deficit in Wh-movement causes some deficits that are similar cross-linguistically, such as the deficit in the comprehension of relative clause in which no last resort strategy is being employed, in topicalization structures, and in Wh questions. It also applies for production, disturbing the production of these structures. The deficit in Wh-movement also causes the doubling of the relative head DP when children try to produce an object relative. The account also explains cross-linguistic differences: the comprehension of sentences for which a rescuing strategy is independently available in the language is better than in
those languages where there is no resort. Similarly, the production of object relatives where there is an option for resumption as last resort (Hebrew) is significantly better than in Palestinian Arabic, where there is no resort.

References


In H. van Riemsdijk (Ed.), Clitics in the languages of Europe (pp. 145–233). Berlin: Mouton de Gruyter.


