BUCLD 37 Proceedings
To be published in 2013 by Cascadilla Press
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Long vs. Short QR: Evidence from the Acquisition of ACD

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1. Introduction

Quantifier Raising (QR) is an instance of covert movement – movement which has been argued to lack an explicit cue for children to acquire. Significant attention has been given to the acquisition of QR in the literature, and many studies of the acquisition of QR have investigated children's ability to interpret sentences where different scope relations are relevant. Some early studies reported that children have difficulty understanding readings that require QR (Musolino 1998, Musolino et al. 2000, Lidz and Musolino 2002). However, more recent studies have shown that children at the age of four have QR in their grammars (Lidz et al. 2004, Gualmini 2004, Musolino and Lidz 2006, Conroy et al. 2009, among others). The early studies of QR only focused on scope relations between quantified phrases, or between a quantified phrase and negation, and quite poor performance has been accounted for by difficulties "processing" quantified sentences. It is well-known that these cases can be accounted for in theories that do not require QR (cf. Ruys and Winter 2011). In contrast, the experiment presented in this paper investigates children's ability to interpret sentences with Antecedent Contained Deletion (ACD). Such sentences do not necessarily contain quantified phrases such as *some* or *every*, but nevertheless require a mechanism such as QR for their interpretation.[1] Thus, investigating

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[1] See Cormack (1984), Jacobson (1992, 2008) among others for theories that generate the required structural descriptions of ACD sentences by means of a richer inventory of semantic composition principles rather than by means of syntactic movement.

children's ability to understand ACD sentences constitutes a more direct test of children's command of QR. In this paper we argue that children are able to perform both local and non-local QR. Our evidence comes from an acquisition study of ACD demonstrating children's ability to understand sentences like (1a) and (1b). Since QR is required for the resolution of the ACD in (1a-b), the children's ability to understand these sentences provides evidence for the existence of both local and non-local QR in the child grammar.

(1) a. Cookie Monster wanted to be the same thing that Dora is. <short ACD>
b. Cookie Monster wanted to be the same thing that Dora did. <long ACD>

2. What is ACD?

ACD is a phenomenon found in certain Verb-Phrase ellipsis contexts (Bouton 1970, Sag 1976). For VP-ellipsis to be licensed, there has to be a pronounced antecedent VP in the sentence that is identical to the elided VP. This is straightforward in examples like (2), where the only VP in the sentence – *read a book* – can serve as an antecedent for the elided VP. In ACD cases like (3), however, the elided VP is properly contained inside the only possible antecedent VP in the sentence, making matching the elided VP with the antecedent VP seemingly impossible. Under a copy theory of ellipsis, where ellipsis resolution involves copying the antecedent into the ellipsis site, this puzzle presents itself as an "infinite regress" problem: after the elided VP is resolved to the antecedent VP, the resulting VP still contains an elided VP which must also be resolved. The resolution process thus cannot reach a conclusion. The first two steps of the process are shown in (3b-c), where the antecedent VP and the elided VP are marked to illustrate the problem.

(2) a. John read a book and Mary did <$_{\text{ELIDED VP}}$>, too.
b. John read a book and Mary did <~~read a book~~>, too.

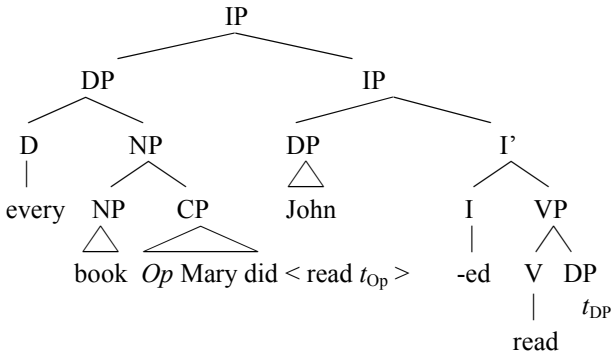
(3) a. John read every book that Mary did <$_{\text{ELIDED VP}}$> .
b. John read every book that Mary did <~~read every book that Mary did <$_{\text{ELIDED VP}}$>~~>.
c. John read every book that Mary did <~~read every book that Mary did <read every book that Mary did <$_{\text{ELIDED VP}}$>>~~>.

To solve the containment problem in (4), the standard analysis of ACD assumes that the object DP is covertly moved out of IP1 to a syntactic position in the higher IP2, yielding the LF in (5) and the tree structure in (6). The resulting VP, containing only the verb and the trace of covert movement, can then be used as an antecedent for the elided VP (Sag 1976, Williams 1977, May 1985, among many others). The phenomenon of ACD has thus been considered to be strong evidence for the existence of QR.

(4) [$_{IP1}$ John [$_{VP}$ read [every book that Mary did <$_{ELIDED\ VP}$ >]]]].

(5) [$_{IP2}$ [$_{DP}$ every book *Op* that Mary did < read t_{Op} >] [$_{IP1}$ John [$_{VP}$ read t_{DP}]]]

(6)



3. Previous studies

Only three previous studies have investigated children's performance with ACD. Kiguchi and Thornton (2004) use binding theoretic phenomena in conjunction with ACD to argue that four- and five-year old children command the syntax of ACD constructions. They examined the availability of co-reference interpretations for sentence like those in (7) and found that their children gave adult-like interpretations as indicated in (7a-b).[2]

(7) a. The Mermaid baked him$_i$ the same food that Cookie Monster$_{*i}$ did.
b. Dora gave him$_i$ the same color paint that the Smurf's$_i$ father did.

In (7a) co-reference between *Cookie Monster* and *him* was not possible while in (7b) co-reference between *Smurf* and *him* was. This can be explained, as Kiguchi and Thornton argue, if children resolve ACD like adults do. In both cases, the need to undo antecedent containment forces the object DP to move above the matrix VP. Thus, at LF, *him* no longer c-commands the proper name inside the relative clause thereby obviating a potential Condition C violation. In (7a), however, ACD resolution will yield a relative clause of the form [*Op$_j$ that Cookie Monster$_i$ <baked him$_i$ t$_j$>*], which constitutes a Condition B violation. In (7b), by contrast, the relative clause is of the form [*Op$_j$ that Smurf's$_i$ father <gave him$_i$ t$_j$>*] after ACD resolution and so does not give rise to a binding theory violation.

[2] Kiguchi and Thornton also examined sentence like "He$_i$ jumped over every fence that Kermit$_{*i}$ tried to," and found, again, adult-like interpretations suggesting that the landing site for ACD-triggered QR is below the matrix subject, following Fox's (2000) proposal.

Syrett and Lidz (2009,[3] 2011) tested children's command of ACD more directly, without relying on children's command of binding theory. Relevantly for our purpose, Syrett and Lidz (2011) used ambiguous ACD sentences with multiple QR sites, (8), with the two possible readings in (9a-b).[4]

(8) Miss Piggy wanted to drive every car that Kermit did.

(9) a. Miss Piggy wanted to drive every car that Kermit drove. <short QR>
b. Miss Piggy wanted to drive every car that Kermit wanted to drive. <long QR>

Syrett & Lidz present these ambiguous target sentences at the end of scenarios that favor just one interpretation, and ask both children (N=24) and adults (N=30) to judge whether the target sentence matches the scenario. QR size was a between-subject factor in this experiment, and had two levels: (i) the Embedded condition, where the only reading that was made true in the story is derived by QR-ing *every* to an embedded IP/vP position, and (ii) the Matrix condition, where the only reading that was made true in the story is derived by QR-ing *every* to a matrix IP/vP.

Syrett & Lidz's results show that subjects responded with "yes" only about 50% of the time (In the Embedded condition: Adults 68% and children 46%, in the Matrix condition: Adults 50% and children 38%). Although the subjects, even the adults, failed to respond with "yes" to the ambiguous sentences despite the Principle of Charity (Wilson 1959, Quine 1969, Davidson 1984), Syrett & Lidz argue that the justifications of the replies given by the subjects suggest that both adults and children are accessing the other reading when they reject the sentence. Based on these justifications, Syrett & Lidz concluded that QR in child grammar can target multiple landing sites.

Given the poor "yes" rate in their experiment, evidence for Syrett & Lidz's conclusion that children can perform both local and non-local QR comes from the justifications children provided for their replies. It is of concern that children gave "reliable" justifications – ones clearly indicating one of the two relevant readings of the target sentences – only 54% of the time (52/96). It is not clear that the justifications are strong enough evidence for the claim that the children in fact accessed the readings in question. There is a possibility that the children guessed, and then randomly picked one of the possible antecedents in the sentence when asked to justify their replies. Note that since the adults' rate of "yes" replies was so low, the Principle of Charity does not seem to operate here.

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[3] Syrett and Lidz (2009) show that children correctly distinguish between coordination structures such as (ia) and ACD structures like (ib).

(i) a. Miss Red jumped over every frog, and Miss Black did, too
b. Miss Red jumped over every frog that Miss Black did.

[4] Syrett and Lidz (2011) also tested non-ACD VP-ellipsis sentences and ACD sentences with non-finite clause, which are considered to be ungrammatical in adult grammar. Although the results of the ACD with non-finite clause, in particular, were the key point of the paper, we will not review these results here because of space limitations.

By making several methodological improvements, the point of this paper is to see if we can find much firmer evidence that children have knowledge of the (QR) grammar of ACD.

4. The current study

4.1. Methods and materials

Our study investigates whether child grammar can target multiple landing sites for QR. We address two problems that may have influenced Syrett & Lidz's (2011) results: (i) all of Syrett & Lidz's target sentences were ambiguous conditions; (ii) the baseline acceptability of the ACD sentences in Syrett & Lidz was surprisingly low, for both children and adults. Our study tests unambiguous sentences that contain two VPs, allowing for short ACD and long ACD interpretations, (10a-b) (=(1)).

(10) a. Cookie Monster wanted to be the same thing that Dora is. <short ACD>
b. Cookie Monster wanted to be the same thing that Dora did. <long ACD>

Our idea is based on the fact that while an elided VP headed by a main verb is replaced by the appropriate form of "do," an elided VP headed by "be" is replaced by the appropriate form of "be." Therefore, in the sentences we used (with a matrix main verb and an embedded copula), using "did" or "was" for the elided verb provided a different interpretation. Thus the sentences are disambiguated.

Having unambiguous ACD sentences allows for target "no"-conditions. It is usually agreed that children often prefer to reply "yes" rather than "no" ("yes"-bias), and that therefore correctly replying "no" to a 'mismatch' situation reflects linguistic knowledge more than correctly replying "yes" to a 'match' situation. We interpret correct responses to "no"-conditions as evidence that children correctly understand the sentence. Our method is much more in line with the methodology in classically important demonstrations of grammatical knowledge in generative grammar. To take one of many examples, demonstrations of knowledge of the grammatical properties of the binding of reflexives present the reflexive in conditions in which exactly one of two possible interpretations is grammatical so that we can observe whether children differentially behave in the two conditions (Wexler and Chien 1985 in a 2-choice picture experiment, Chien and Wexler 1990 in a truth-value judgment). One does not have recourse to saying that a child who answered incorrectly was just deciding to take a grammatical reading that the experimenter thought (s)he should not take. Thus the judgment data provide for a much cleaner and stronger interpretation. We believe that studies of grammatical knowledge that use grammatically ambiguous stimuli should be a last recourse – only when cleaner studies are impossible, for some reason. Of particular concern is the fact that the Principle of Charity is often violated by children in experiments: there is nothing to require that children prefer the reading that allows them to say "yes", even if

they have a full adult grammar. In their study, Syrett & Lidz (2011) must assume that Principle of Charity is violated, in order to interpret their data as being consistent with grammatical knowledge. We prefer a study that does not rely on the child's following a tendency which may or may not apply.[5]

We recruited 74 English-speaking children (3;6-7;8, M=5;2) from Boston area daycares, afterschool programs, and the Boston Children's Museum with all socioeconomic and ethnic backgrounds for our study, as well as 10 MIT undergraduates (age 19-23, M=20) who served as an adult control group. The undergraduates were native speakers of English with little or no linguistic background, and they received no compensation for their participation. Yes-sayers (N=18), no-sayers (N=4), and children who did not complete the experiment (N=2) were excluded. 50 participants (3;6-7;5, M=5;3) are included in the analysis.[6]

Table 1: Summary of participants

	Short condition	**Long condition**	**Total**
All subjects	**45** 3;6-7;8 (M=5;3)	**29** 3;8-6;10 (M=5;0)	**74** (M=5;2)
Yes/No sayers	17	5	22
No completion	1	1	2
Filtered	**27** 3;6-7;5 (M=5;4)	**23** 4;1-6;10 (M=5;2)	**50** (M=5;3)
Adult control	5	5	10

The children in our study were tested on a Truth Value Judgment Task: an experimenter who is a native speaker of English told the child a story using a series of pictures on a computer screen, and then a puppet (Kermit the Frog) told the child what he thought happened in the story. The child was asked to judge if the puppet was right or wrong about the story. Participants had some time to get used to telling the puppet that he is right or wrong through two practice sessions

[5] Kristen Syrett (p.c.) notes that the low "yes"-rate observed in Syrett & Lidz (2011) was not meant to be interpreted as a low accuracy rate, since the study tested ambiguous sentences where both "yes" and "no" are grammatical. We note that given this design, it is impossible to infer any knowledge of ACD, or lack thereof, from kids' replies in the Syrett & Lidz experiments. Indeed, Syrett & Lidz instead base their argument entirely on the indirect evidence provided by the kids' justifications of their replies. However, as we discussed above, only 54% of the justifications obtained in their study were usable. Thus the argument made by Syrett & Lidz is based on rather weak evidence.

[6] We did not exclude from the analysis subjects who did poorly on filler items. If we exclude subjects who answered two or more filler items incorrectly, the total number of subjects included in the analysis would be 38 (Short: N=19, 3;6-7;5, M=5;4, Long: N=19, 4;1-6;10, M=5;3). The results obtained using this criterion remain the same as with the more inclusive criterion reported in the paper, and the significant differences we are reporting all remain significant as well.

at the beginning of the experiment. The whole session took ten minutes per participant. Experiments at daycares were conducted in a relatively quiet space in a classroom, while experiments at the Children's Museum were conducted in a quiet room. There were 4 target trials, which were all "no"-conditions, and 3 filler trials, two of which were "yes"-conditions in one session. Filler sentences had similar structures to target sentences but contained a lexical verb instead of an auxiliary (See Appendix for the complete list of target and filler sentences). We only gave "no"-conditions because we were quite limited in one of our experimental venues in terms of the time the study could take. Given this, we wanted each experimental item to be as informative as possible; as we argued, this is achieved by having a clear "no"-condition. The items were randomized and two orders were created: the randomized order and its reverse. Subjects were randomly assigned to one of the two orders at the beginning of the experiment. Short vs. Long ACD was a between-subject factor, and participants were randomly assigned to one of the two conditions. A sample from the Short ACD condition is given in (11) below.

(11) Example story

Experimenter: This is a story about Dora and Cookie Monster. Dora and Cookie Monster are very lucky – they met a Genie that will make their wishes come true!
Dora: I would like to become a tall tree so I can see everything from above!
Genie: Hm, if you would like to see everything from above, you should be a cloud. I will do that. <poof, Dora becomes a cloud>
Dora: Oh no!
Cookie Monster: I would like to know what it's like to have flowers. So I would like to become a tall tree, too!
Genie: In that case, you should become a rose bush, not a tree, because rose bushes have pretty flowers!
Cookie Monster: I would like to be a tall tree, but OK… <poof, CM becomes a rose bush>
Experimenter: That was the story. Can you tell us what happened, Kermit?
Kermit: I know what happened. Cookie Monster wanted to be the same thing that Dora was.

In the counterpart item in the Long condition, Cookie Monster wanted to be a rose bush but ended up becoming a cloud, and the target sentence ends with "did," which is again, false.

4.2. Results

Table 2 summarizes the results of this study. The adult control group showed 95% accuracy both on Short and Long (Short: target 19/20 items, filler 14/15 items; Long: target 19/20, filler 14/15). The accuracy rates per item correspond to the target sentences in the Appendix (2a-d) and (3a-d). Assuming

that chance level is at 50%,[7] children performed above chance with both Short ACD and Long ACD (p=.022; p<.001, respectively).[8] This suggests that children do understand ACD sentences, both short and long. The response rates to sentences with ACD in our study are much higher than in Syrett & Lidz's (2011) study, but consistent with Syrett & Lidz's (2009) as well as Kiguchi &Thornton's (2004) results and the fact that ambiguous sentences in Syrett & Lidz's (2011) study could admit of either answer. We also found a significant difference between Short and Long, where the accuracy rates for the Long condition were significantly higher than those for the Short condition (p=.004). The two orders of presentation of the experimental items did not have a significant effect on the results of this study (p=.1004).

Table 2: Accuracy rates

	Target Accuracy rate	Per item				Filler Accuracy rate
		a	b	c	d	
Short	61.1%	67%	44%	63%	70%	66.7%
Long	79.3%	87%	91%	65%	74%	61.7%

Note that filler accuracy is not different between the Short and Long conditions (p=.532). Furthermore, within both the Short and Long conditions, target accuracy and filler accuracy are not significantly different from each other (p=.932; p=.077, respectively).

We divided the subjects into two age groups as indicated in Table 3. The younger group consists of kids younger than five and one-half years old, while the older group consists of kids who are over five and one-half years old.[9]

Table 3: Age groups and accuracy rates

	Short		**Long**		**Total**
<5.5-year olds ('Younger')	N=13 3;6-5;5 (M=4;8)	77%	N=14 4;1-5;4 (M=4;8)	73%	N=27 3;6-5;5
≥5.5-year olds ('Older')	N=14 5;6-7;5 (M=6;1)	46%	N=9 5;6-6;10 (M=6;1)	88%	N=23 5;6-7;5

[7] Setting 50% as the chance level is conservative, given that all the target items in our design were "no"-conditions, and that our accuracy rates are based on the negative responses by children, going against any "yes" bias.

[8] Here and in the rest of this section, difference from chance was tested using one-sample two-tailed Z-tests. The significance of a possible difference between two means was tested using Welch two-sample t-tests.

[9] This criterion was chosen since it roughly bisects the set of children who were tested. The same effects are found if the age cutoff is set to be at 5;0. We also observe a similar trend with a cutoff at 4;6, but for this criterion the numbers are too small to draw statistical inferences.

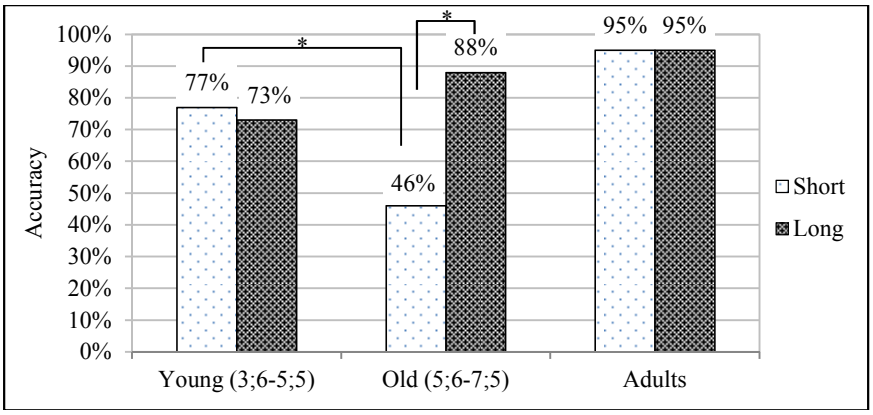

Figure 1: Accuracy rates across age groups

Figure 1 shows the accuracy rates by the age groups. In the younger group, both the Short and Long conditions are above chance ($p<.001$; $p=.001$, respectively) and the difference in accuracy between Short and Long is not significant ($p=.659$). In the older group, only the Long condition is above chance ($p<.001$; p-value for the Short condition: $p=.564$), and the difference between Short and Long is significant ($p<.001$). When comparing the performance of the two age groups in the Short and Long conditions, we find that the difference between the age groups in the Short condition is significant, but there is no significant difference between the age groups in the Long condition ($p<.001$; $p=.284$, respectively). Note that within the Short and Long conditions, there is no effect of age on filler accuracy ($p=.621$; $p=515$, respectively).

5. Discussion

Clearly, the older children and younger children in our study exhibit different patterns of behavior with ACD. The older children showed significantly better understanding of Long ACD than Short ACD, but younger children showed good understanding of both Long ACD and Short ACD. Since the behavior of the younger children is above chance, we know that they have already acquired the grammatical mechanism for using both local and non-local QR to feed ACD resolution. What has developed in the grammar of the older children that the younger children lack?

We propose that the distinct behavior of the older children is due to the development of a preference for matching the size of QR with the size of ellipsis in a sentence (Scope-Matching Preference). This preference has been shown to exist in the adult grammar by Breakstone et al. (2011). In short, the preferred interpretation of the ACD sentences in both the Short and Long conditions in our experiment required non-local QR of *the same* DP to a position above the matrix verb. This created a mismatch between the size of QR and the size of ellipsis in the Short condition but not in the Long condition. The older children,

who have acquired the Scope-Matching Preference, responded to this mismatch with lower accuracy.

Consider again our main example, repeated below in (12a-b). Recall that in our stories, Cookie Monster wants to be the actual thing that Dora was/wanted to be and, in our stories, Cookie Monster knows what Dora *wanted* to be. We believe that the most natural interpretation of our sentences is one where *the same* DP is interpreted above *want*. This structural configuration is illustrated in (13a-b).

(12) a. Cookie Monster wanted to be the same thing that Dora is. <short ACD>
b. Cookie Monster wanted to be the same thing that Dora did. <long ACD>

(13) a. [$_{IP2}$ [the same thing that Dora < is *t* >]
[$_{IP1}$ Cookie Monster [$_{VP}$ wanted to [$_{VP}$ be *t*]]]]
b. [$_{IP2}$ [the same thing that Dora < did *t* >]
[$_{IP1}$ Cookie Monster [$_{VP}$ wanted to [$_{VP}$ be *t*]]]]

In the Long ACD sentence (13b), the size of movement caused by QR and the size of material required to resolve the ACD gap are matched. In the Short ACD sentence (13a), on the other hand, the QR step is larger than the size of structure required to resolve the ACD.

The mismatch of the kind observed in (13a) has been shown to cause processing difficulties in adults. Breakstone et al. (2011) find that the online processing of sentences with ACD is slowed when the size of QR in the sentence is larger than what is required for ACD resolution. As with the sentences in our study, Breakstone et al. find that the processing of a Short ACD condition is more difficult than the processing of a parallel Long ACD condition, when the quantifier heading the DP (in their case, *exactly* DP) is interpreted as taking scope in the matrix clause. Breakstone et al. thus propose the Scope-Matching Preference principle, inspired by work of Hardt and Romero (2004): The scope of an expression that hosts an ACD gap should match the size of an elided constituent in the same sentence.

Since the younger children in our study do not exhibit the scope matching effect, we conclude that the Scope-Matching Preference must have been acquired by the children at some stage in the development of their grammar, around the age of 5-5;6. One possible explanation for the scope-matching effect could reside in the nature of QR in children vs. adults. We propose that QR in young kids involves successive-cyclic movement from the base-generated position of the quantifier to its final landing site. This would yield a movement step that demarcates an antecedent VP of the correct size that would be needed to resolve short ACD even if the quantifier subsequently moves to a higher position. In adults, on the other hand, QR that must target a non-local VP projection can move in one step, without stopping at intermediate VP levels. Thus, if a quantifier moves non-locally but a sentence requires resolution to a VP level that was skipped by the quantifier, the structure would have to be reanalyzed to satisfy the scope matching preference and therefore lead to

difficulty in processing.[10] In our cases, the most natural interpretation was for *the same DP* to be above *want.* This means that the Short ACD condition requires a reanalysis step that the Long ACD condition does not, making the Long ACD condition easier to process despite containing the gap of a larger movement step.

One might consider a cognitive explanation for the older children's preference for Long ACD readings: perhaps the Long construction is cognitively simpler in some sense than the Short construction. If anything, however, the opposite is the case. In our sentences, the Long construction (where the elided VP is headed by "want") involves two statements about mental states – what the matrix subject wanted and what the subject of the relative clause wanted (e.g. in (12b) what Cookie Monster wanted and what Dora wanted) – and then asserts the equivalence of these two desires. In the Short construction (12a), there is only one "want" event – that of Cookie Monster, who wants to be a particular thing, namely the thing that Dora is. Since young children are known to have difficulties with aspects of "theory of mind" (i.e. aspects of reasoning about mental states), one might predict that Long QR should be more difficult than Short QR, the opposite result than the one we obtained. Moreover, the fact that the younger children did much better than the older children on the Short condition argues against a cognitive abilities explanation.

The behavior we observe in our experiment is better than chance, clearly exhibiting children's knowledge of ACD, and it is also better than previous relevant studies of this construction. However, the behavior we observe is less than perfect. As we have seen, with the exception of the Short condition among older kids, the performance of the children in our study was at about 80%. We note that the children's performance on filler items was also less than perfect and not statistically different from their performance on target items. Our fillers have similar surface structures to the target items, including structures such as relative clauses that children are known to understand at this age, but a lexical verb instead of an ACD gap. Therefore the less than perfect performance on the filler items acts as a measure of the performance difficulties encountered by the children due to processing or memory limitations, and shows that similarly less than perfect performance on ACD is not due to lack of grammatical knowledge.

In conclusion, we believe that we have strengthened the empirical argument for the claim that young children have the grammar of ACD, and therefore we have strengthened the argument that young children have QR. Since QR is a piece of grammatical competence that is not reflected directly in the surface input to the children, we have presented evidence that it is a particular feature of the human mind that is provided by the genetically-determined linguistic

[10] Note that the mirror-image effect, where the quantifier has not moved high enough to resolve ACD in a given sentence has already been found to cause difficulty in the processing of such sentences in adults. Hackl et al. (2012) find that when a quantifier has only moved to an embedded VP position, the processing of a Long ACD sentence is substantially slowed down compared to the resolution of a Short ACD sentence.

capacity. Finally, we have begun to pinpoint a timeframe in language acquisition where the Scope-Matching Preference (Hardt and Romero 2004, Breakstone et al. 2011) is developed.

Appendix

Below is the list of filler and target sentences that we used in our experiment. Condition was a between-subject factor, so children were tested on the target items in (2) or on those in (3). All the children were tested on the same filler items, given in (1). Items (1a-b) are designated to be true in the story, while (1c) is false. All the target items are designated to be false in the story.

(1) Filler items (used for both the Short ACD and Long ACD conditions)
   a. Elmo wanted to be at the same place that Sponge Bob visited.
   b. Goofy wanted to be on the same baseball team that Scooby played on.
   c. Mickey Mouse wanted to be at the same party that Donald Duck went to.

(2) Target items for the Short ACD condition
   a. Donald Duck wanted to be the same color that Mickey Mouse was.
   b. Elmo wanted to be the same animal that Lisa was.
   c. Scooby wanted to be the same shape that Sponge Bob was.
   d. Cookie Monster wanted to be the same thing that Dora was.

(3) Target items for the Long ACD condition
   a. Donald Duck wanted to be the same color that Mickey Mouse did.
   b. Elmo wanted to be the same animal that Lisa did.
   c. Scooby wanted to be the same shape that Sponge Bob did.
   d. Cookie Monster wanted to be the same thing that Dora did.

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