University of Massachusetts Occasional Papers in Linguistics

Volume 24 UMOP 22: *New Perspectives on Language Acquisition*

Article 14

1998

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Ayumi Matsuo

University of Connecticut

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Recommended Citation

Matsuo, Ayumi (1998) "Reciprocity and Binding in Early Child Grammar," *University of Massachusetts Occasional Papers in Linguistics*: Vol. 24 , Article 14.

Available at: <https://scholarworks.umass.edu/umop/vol24/iss1/14>

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Reciprocity and Binding in Early Child Grammar

Ayumi Matsuo

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Abstract

This paper concerns the three experiments that were conducted with 15 children (mean age: 4;4) on their interpretation of the reciprocal anaphor *each other*. The results show that children have no problem understanding mono-clausal sentences with *each other* but they start behaving differently from adults when syntactic requirements of the reciprocal anaphor are concerned. Specifically, They accept reciprocal sentences that violate the locality condition or the condition on A-binding. I propose that the reason that children behave differently from adults is because they do not know that *each* forms a constituent which is a reciprocal anaphor with *other*. They treat *each* as a floating quantifier and *other* as *the other one*. Hence, they do not allow the reciprocal anaphor to be influenced by the locality condition on an LF *each*-movement or semantic requirements in selecting a contrast and a range argument of *other*.

1. Introduction

There has been some research on the reciprocal anaphor *each other* (by Otsu (1981), Matthei (1981) and others) and people have found that children have problems in defining the locality condition for *each other*, or that children do not know the reciprocal anaphor. But in this paper, I will step in further and investigate what exactly children don't know about *each other*.

This paper discusses the results of three experiments and one case study that were conducted with children with a mean age of 4;4 in May 1996, May and June 1997. Experiment 1 concerned simple sentences containing *each other* and Experiment 2&3 concerned more complex sentences that containing *each other*. Following Heim, Lasnik, and May (1991), I assume that *each* in *each other* undergoes an LF-movement and it obeys a syntactic requirement as in (1).

(1) Syntactic Assumption

e of *each* is an anaphor; [*e other*] is an R-expression.

The trace arising from the movement of *each* must be bound in its governing category; whereas the residue phrase of that movement must be free in all categories. (73;1991)

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Experiment 1 examined how children behave in understanding the simple sentences with *each other* that do not violate any syntactic constraints. Experiment 2 examined how children understand the meaning of the complex reciprocal sentences that involve the locality condition on *each* movement. Experiment 3 is on the complex reciprocal sentences that violate the requirement that the trace of *each* must be A-bound.

I will consider three possibilities about how children perform these tasks. (i) The first possibility is that children have the adult semantic and syntactic intuitions regarding *each other*. This will support the idea that both semantic and syntactic intuitions of the reciprocal anaphor are a part of UG. (ii) The second possibility is that children do not have knowledge of the syntax or semantics of *each other*. Namely, they do not know the meaning of *each other* and/or requirements of *each* movement. This will be supported if there is a significant difference between answers given by adults and children in the Experiments. (iii) The third possibility is that children understand simple reciprocal sentences but not more complex sentences that involve the syntactic requirements listed in (1).

2. Experiments

All of the experiments to be discussed here were designed following the Truth Value Judgment Task (Crain and McKee, 1985) and a grammaticality judgment task (McDaniel and Cairns, 1996 and Lillo-Martin and Hiramatsu in preparation).

The subjects for the first three experiments were 9 female and 7 male children in the University of Connecticut Child Development Laboratories. They ranged in age from 3;11 to 5;10 with a mean age of 4;4. In addition, 11 adult controls were tested.

3. Experiment 1

The target sentences of Experiment 1 are from (2)-(5).

- (2) The frogs washed each other. (no)
- (3) The mother and the dog dressed each other. (no)
- (4) The horse and the cow scratched each other. (yes)
- (5) Ernie and Bert kicked a ball to each other. (no)

(2) is acted out in the situation where the frogs washed themselves, so the expected answer is 'no'. (3) is acted out in the situation where the dog dressed the mother but the mother does not dress the dog. Instead, the mother dressed her son; the expected answer is 'no'. (4) is acted out in the correct situation. (5) is acted out in the case where Ernie and a reindeer kicked a ball to each other and Bert and another reindeer kicked a ball to each other. This is also a 'no' example.

4. Results

The results are summarized in Table 1 (appendix). Although Table 1 shows that overall, adults performed better than children, the statistical measure: ANOVA showed that this difference is not significant; the p-value is .19. We take this result to show that children have the basic knowledge of simple reciprocal sentences. Also the results of T-test reported ($p < .0001$) support the idea that children are not giving answers by pure chance

and both adults and children distinguish the sentences that call for 'yes' answers from the ones that call for 'no' answers.

After Experiment 1, we can narrow down our three possible outcomes of the experiments reviewed into two. The second possibility, that children have neither semantic nor syntactic knowledge of the reciprocal anaphor will be excluded because children did show their knowledge on basic syntax and semantics of *each other* in this experiment. Following Heim, Lasnik and May (1991), I conclude that children know that *each* in *each other* QRs to the subject NPs in (2)-(5) and children rule in the right truth conditions in these sentences.

5. Experiment 2

Experiment 2 tested how children behave in understanding the more complex reciprocal sentences that involve the locality condition listed in (1).

The target sentences of Experiment 2 are as in (6) and (7).

(6) The spacemen said that the girls_i tickled each other_j. (yes)

(7) The spacemen said that the girls fed cookies to each other. (no)

(6) was acted out in the situation where the spacemen said that the girls tickled each other and it is a 'yes' sentence but in (7), girls did not feed cookies to each other; instead, Girl 1 fed a cookie to Spaceman 1 and Girl 2 fed a cookie to Spaceman 2, and this is the situation which the spacemen described. It is a 'no' sentence.

In (6) *each other* is A-bound in its governing category, namely an embedded CP but it is not A-bound in its governing category in (7).

6. Results

The results of Experiment 2 are summarized in Table 2. It shows that more children accepted the sentences which violate the locality condition, and the ANOVA (p -value=.008) shows the difference between adults and children to be significant.

7. Discussion

There are a few possible interpretations of the results in this experiment but I would like to propose that children treat *each* in *each other* as a floating quantifier. They also have a relaxed requirement in deciding range and contrast arguments of *other*. Children did well in Experiment 1 when there is only one NP but they start having a problem when there is more than one NP in a sentence. Before I go into detail, let me briefly introduce the points of the proposal made by Heim, Lasnik and May (1991). Let us look at example (6).

(6) The spacemen said that the girls_i tickled each other_j. (yes)

They propose that (6) has an LF representation as in (8).

(8) The spacemen said that [[the girls] each_i] tickled [_{t_i} other] (irrelevant part suppressed)

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(8) The spacemen said that [[the girls] each_i] tickled [_{t_i} other] (irrelevant part suppressed)

In (8), *each* has moved to its local antecedent and is attached to *the girls*; the trace of *each* is A-bound in its governing category. The truth condition for (8) is as in (9).

(9) The spacemen said that $[\forall x_2(x_2 \pi \text{the girls}) \forall x_3(x_3 \pi \text{the girls} \& x_2 \neq x_3)]$ tickled (x_2, x_3)

Here, *other* in *each other* has a requirement that says that you have to pick the NP that *each* is attached to as a range argument. Then, what are the range and context arguments that *other* chooses? Heim, Lasnik and May have an account for them in the following example:

(10) I don't like this picture, show me another. (69;1991)

Other means "y not identical with x" and y is called a range argument and x is called a contrast argument. In (10), y will be pictures and x is *this picture* and what they are asking is that they want to see pictures distinct from this particular picture. Now, let us work on example (6) and find what these arguments are in (6). In (6), the range argument is *girls* and a contrast argument is a particular girl that is among the set of *girls*, which is a range argument. Here, what we need to notice is that Heim, Lasnik and May explicitly state that when *other* in *each other* is concerned, the NP that is chosen as a range argument is always the NP that the quantifier *each* is attached to. But this requirement is not observed when *other* occurs in the phrase like *the others*. Compare the following sentences.

(11) The youngest three of the women each gave a lecture to the others.

(12) The youngest three of the women gave a lecture to each other. (69;1991)

In (12), a sentence with *each other*, the range argument will be *the youngest three of the women* and this sentence is true only when the youngest three of the women gave a lecture to another woman who is among the set of the youngest three of the women. On the other hand, things are different in (11) that does not involve the reciprocal anaphor: *each other*. In (11), the range argument can be either *the youngest three of the women* or *the women*. So, (11) is true when "the youngest three of the women each gave a lecture to the others among *the three youngest women*" or "they gave a lecture to the others among *the women*". So, it is a peculiar characteristic of *other* in *each other* that the range argument always has to be the NP that *each* is attached to.

Going back to the responses given by the children, I propose that children do not know two things. First, they do not know that *each* forms a constituent with *other*. They are taking *each other* as *each* plus the other like *each boy* or *each apple* and *each* is a floating quantifier. Second, they think that both range and contrast arguments of *other* can be picked in the discourse namely things that are mentioned in a sentence. They do not know that generally the contrast argument must be a subset of the range argument. They pick two NPs randomly and that is why they rule in the wrong situation. (7) can be paraphrased something like (13).

(13) Each of the spacemen said that the girls fed cookies to *the ones* different from *those*.

Since children do not know which NPs to insert the place of *the ones* (which is a range argument) and *those* (which is a contrast argument), there are four possibilities for (13) to be true. But here, I am concerned with the situation in which (7) is acted out so let us just look at the relevant possibilities. I propose that children think that (13) can be understood as in (14).

(14) Each of the spacemen said that the girls fed cookies to *the one of the spacemen*
that is different from *them*
the girls

Suppose children insert *the spacemen* in the place of *the ones* as a range argument, then they are left with two choices for a contrast argument. It can be *the spacemen* (written here as a bound variable: *them*) or *the girls*. For (7) to be the right situation, children must have chosen *the girls* as a contrast argument. So, the truth condition will be as in (15).

(15) Each of the spacemen said that $[\forall x_2(x_2 \cdot \pi \text{the girls})] \forall x_3(x_3 \cdot \pi \text{the spacemen} \cdot \&x_2 \neq x_3) \text{ fed } (x_2, x_3, \text{cookies})$

In (15), the part that shows that the spacemen that are different from the girls is redundant so the part that says x_2 is not equal to x_3 is considered vacuous. The situation acted out in (7) is allowed in (15); in other words, the girls can give cookies to any spacemen.

To sum up the discussion so far, children do not have problems in ruling out wrong interpretations of reciprocal sentences when the sentences are simple and there is only one subject NP. However, they start behaving differently from adults when the sentences become more complex. I explained that it is because children do not know that *each* and *other* form a constituent and they take *each* as a floating quantifier and *other* as *the other one* like *other apple*, *other boy* etc. So, they take any NPs mentioned in the sentence as range and contrast arguments.

Next, let us look at one more case that also involves more than one NP.

8. Experiment 3

Experiment 3 tested how children interpret the sentences in which the trace of *each* is not A-bound. The target sentences were as in (16) and (17).

(16) [The boys' friends]_i scratched each other_i. (yes)

(17) The trolls' parents played with each other. (no)

(16) is a 'yes'-sentence and *each other* is A-bound by a local NP: *the boys' friends*. It is acted out in the situation where the boys' friends scratched each other. (17) is acted out in the wrong situation; namely, the trolls' parents played with the trolls but the trolls did not play with each other.

9. Results

The results of Experiment 3 are summarized in Table 3. It shows that children scored badly compared to adults in sentences in which the trace of *each* is not A-bound. In other words, more children accepted a 'no' sentence in (17) than adults did. An ANOVA showed that the difference between adults and children to be significant ($p=.0053$).

10. Discussion

Children, like adults, accept sentences such as (16) where *each* moves to the A-binder and the syntactic requirement on *each* is met. However in a case like (17), a phenomenon similar to that observed in Experiment 2 is seen. In (17), in adult grammar, *each* should be attached to the NP *the trolls' parents* so the correct truth condition for (17) is as in (18).

(18) $[\forall x_2(x_2 \cdot \pi \text{the trolls' parents'}) \forall x_3(x_3 \cdot \pi \text{the trolls' parents'} \ \& x_2 \neq x_3) \text{ played with } (x_2, x_3)]$

On the other hand, the children are ruling in the situation as in (19) as a correct truth condition for (17).

(19) $[\forall x_2(x_2 \cdot \pi \text{the trolls' parents'}) \forall x_3(x_3 \cdot \pi \text{the trolls' } \& x_2 \neq x_3) \text{ played with } (x_2, x_3)]$

Why then are the children ruling in a situation such as (19) as a correct truth condition for (17)? The same account that we discussed with regard to Experiment 2 can explain this fact. If children do not know that *each* has to move to the local A-binder and if children think that *each* is like a floating quantifier, they then also think that (17) is something like (20):

(20) Each of the trolls' parents played with *the ones* different from *those*.
ones=the trolls (range) *those*=the trolls' parents (contrast)

And since children take any NP in a sentence as a range and a contrast arguments, suppose then that they take *the trolls* as a range argument and *the trolls' parents* as a contrast argument. It will be something like (21).

(21) Each of the trolls' parents played with the trolls different from the trolls' parents.

In (21), the part that says that the trolls that are different from the parents is again redundant and (21) will rule in the case in which (17) is acted out. In other words, the trolls' parents played with any trolls.

11. Case Study

Before concluding, let me report one interesting Case study on subject K (4;8) on a grammaticality judgment task. As mentioned earlier in this presentation, we found that children take any NP in a discourse as a range argument of *other* but Subject K seems to have a radical way of doing so. How radical is it? She conjoins two NPs that are in

discourse and take this conjoined NP as a range argument of *other*. Let me go into the details. First, the sentences that are tested are as follows.

(grammaticality-1)

- (31) *The children's **frog** jumped over each other
- (32) *The boys said that **the ant** dried each other
- (33) *The child's **fish** patted each other
- (34) *The spaceman said that **the cow** fed grapes to each other
- (35) The children's bears licked each other
- (36) The boys said that the girls combed each other

Sentences (31)-(34) are ungrammatical but K ruled in (31) and (32). In (31), the frog jumped over the children and it is uttered instead of *the children's frog jumped over them*. (32) is parallel to (31). (33) is tested in the reading where the fish patted the child, so we might rather say "the child's fish patted him". She ruled out (33) and (34) but what we should note here is that she ruled them out for a very curious reason. Let us look at her responses below. Remember here, I showed the story where the fish patted the child. When she hears "the child's fish patted each other", she says

- (37) No, because the child didn't. (response for (33))
- (38) No, he didn't feed the cow. (response for (34))

For K, if the child and the fish patted each other in (33) or the spaceman and the cow fed grapes to each other, the sentences seem to be grammatical. So, we made a hypothesis that she is taking (33) as the child and the fish patted each other, where the two NPs are conjoined with *and*.

As for (31), remember that the frog jumped over the children in this story and even though the children did not jump over the frog, she accepted the sentence to be grammatical. From this result, I infer that for K, *each other* calls for more than two events between the NPs that are introduced in the sentence. Having this in mind, we did one more session with subject K, which confirmed our hypothesis.

The following is the test sentences (grammaticality-2)

- (39) *The child's duck smelled each other
 ↑ ↑
- (40) *The Smurf's cat gave medicine to each other
 ↑ ↑
- (41) *The boy's monkey lifted each other
 ↑ ↑
- (42) *The cow said that the kangaroo combed each other
 ↑ ↑
- (43) *Mama dinosaur said that the boy dinosaur gave a gift to each other
 ↑ ↑
- (44) *The bird said that the zebra washed each other
 ↑ ↑

In (39), (40), (42), and (43), there are more than two events; a reciprocal event here, between the two NPs in the sentence. If our hypothesis of Subject K's grammar is right, she must judge them to be grammatical. For (41) and (44), as shown in the diagrams below corresponding sentences, there is only one event from one of the NPs to the other. If K calls for more than two events in each other sentences, she must rule them out. This is exactly the results we got.

	(31)	(32)	(33)	(34)	(35)	(36)	0-incorrect	1-correct
(g1) 0	0	1	1	1	1			
	(39)	(40)	(41)	(42)	(43)	(44)		
(g2) 0	0	1	0	0	1			

The two tailed sign test ($p=.031$) indicates that the difference between the two cases namely the case where there is only one event and the case where there are more than two events is significant in her responses.

This is just one child, but it is interesting that she tends to conjoin the NPs that appear in sentences and take them as a range argument; as long as there are more than two events involved in these conjoined NPs, she judges the sentences to be grammatical.

12. Three Experiments Combined

Lastly, let us look at the results of Experiments 1 through 3 combined. The statistical measure: ANOVA (p -value .0111) shows the contrast between correct responses to Experiment 1 by children, namely their knowledge of *each other* in simple sentences, and Experiments 2&3, namely, their knowledge of *each other* in complex cases is robustly significant. However, the same is not true with adults. For them, the difference between Experiment 1, and Experiments 2&3 is not significant ($p=.8531$).

13. Conclusion

In conclusion, the results of the three experiments fail to reject the third possibility. Namely, children can make a right association between a sentence and a potential meaning when a sentence contains a simple reciprocal construction. But they have problems in doing so when a sentence becomes more complex. I conclude that the reason they behave like this is because they do not know two things. They do not know that *each* and *other* form a reciprocal anaphor. They take *each* as a floating quantifier and they take *other* to mean something like *the other one*. Second, they choose random NPs that are in a sentence as a range and a contrast arguments of *other*. They sometimes pick a wrong NP as the argument.

The last thing that I need to note here concerns learnability. How will children learn this requirement of an LF *each* movement? The suggestion that I have is related to the strong lexical learning hypothesis that Chien and Wexler (1990) discuss. As soon as children learn that *each* forms a constituent that is a reciprocal anaphor with *other*, they will know the syntactic requirement on *each* because it should be in UG. They will let *each* undergo an LF movement to the right NP that is in its governing category and that is in an A-position. As long as they move *each* to the right NP, they automatically take

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that NP as a range argument of the part *other*. And children will have a right association between a complex reciprocal sentence and its right interpretation.

14. Appendix

Table 1: Experiment 1

Percentage of correct responses

%correct responses	reciprocal situation	non-reciprocal total	
children	92	91	91.5
adults	100	94	95

Table 2: Experiment 2

Percentage of correct responses

%correct responses	clausemate situation	non-clause mate	total
children	97	60	78
adults	100	100	100

Table 3: Experiment 3

Percentage of correct responses

%correct responses	A-bound situation	not A-bound	total
children	100	50	75
adults	100	100	100

Acknowledgments

I would like to thank Howard Lasnik, Diane Lillo-Martin, and especially William Snyder for their thorough advice. I am also grateful for the audience at GALA '97, at the syntax workshop at UConn and at New Perspectives on Language Acquisition; especially Sergey Avrutin, Nigel Duffield, Ken Drozd, Tom Roeper and Ken Wexler for their valuable comments. Also, my thanks go to Laura Conway, Anne Halbert, Diane Lillo-Martin, Kazumi Matsuoka, Maki Yamane, and the teachers and children at the University of Connecticut Child Development Laboratories for their assistance with the experiments. I am also grateful for Nigel Duffield and Rosanne Pelletier for their last minute help with proof reading. I am responsible for any remaining errors.

References

- Chien, Y-C., & K. Wexler. (1990). "Children's Knowledge of Locality Conditions in Binding as Evidence for the Modularity of Syntax and Pragmatics", *Language Acquisition* 1, 225-295.
- Crain, et al. (in press) "Quantification without Qualification", *Language Acquisition*.
- Crain, S. and K. Wexler. (forthcoming) "Methodology in the Study of Language Acquisition: A Modular Approach", In W.C.Ritchie and T.K.Bhatia (Eds.) *A Handbook of Language Acquisition*, Academic Press.
- Heim, I, H. Lasnik and R. May. (1991) "Reciprocity and Plurality", *Linguistic Inquiry* 22, 63-101.
- Hiramatsu, K. (1997) "A Production/Judgment Asymmetry in Children's Negative Questions", ms. University of Connecticut.

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Hiramatsu, K. and D. Lillo-Martin (in preparation) "Children Who Judge Ungrammatical What They Produce", ms. University of Connecticut.

Matthei, E. (1981) "Children's Interpretation of Sentences Containing Reciprocals", In S.Tavakolian (Ed.), *Language Acquisition and Linguistic Theory*. Cambridge, Mass, MIT Press.

Otsu, Y. (1981) *Universal Grammar and Syntactic Development in Children: Toward a Theory of Syntactic Development*, Ph.D. Dissertation. MIT.

Department of Linguistics
University of Connecticut
U-145 341 Mansfield Rd.
Storrs, CT 06269-1145
aym93001@uconnvm.uconn.edu