

Successful Cyclic Movement

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Successive Cyclic Movement and
its development in children

Some Terms

- Partial movement: Movement involving strictly local movement of a wh-phrase to the spec-cp of the embedded clause
 - A scope marker inserted in the matrix spec-CP
- Long-Distance Movement: When a wh-phrase moves through an intermediate spec-CP on the way to the matrix spec-CP and leaves no overt trace.
- Wh-copying: When a wh-phrase moves through an intermediate spec-CP on the way to the matrix spec-CP and leaves an overt trace.

Research Question

- Does the faculty of successive cyclic movement develop in stages or is it available from a young age
 - Children as young as three years old

Scope Marking

- Extraction cannot occur out of a lower clause in a scope-marking language
- Children interpret the lower clause more readily

Scope Marking in English

How did Kermit ask who to paint?

|

Scope

Marker

|

True

wh-phrase

- 1) Who do you think who is in the box?
- 2) What do you think what babies drink

Types of Local Movement

- | | | |
|----|---|-----------|
| a. | <i>Who did the girl ask what to throw?</i> | ARG + ARG |
| b. | <i>Who did Big Bird ask how to paint?</i> | ARG + ADJ |
| c. | <i>How did Kermit ask who to paint?</i> | ADJ + ARG |
| d. | <i>When did the boy know how he hurt himself?</i> | ADJ + ADJ |

Question Type	'wrong Q down'
ADJ + ARG	31/99
ADJ + ADJ	5/48
ARG + ARG	0/50

If children only had one structure available to them they should have similar success rates for remaining constructions

The Experiments

- Four Experiments were done
- Modeled after and use same children as the de Villiers *et al.* (1990) study
- All were tape-recorded

Experiment 1

- Adjunct extraction uses successive cyclic movement
- Successful production of adjunct extraction would suggest children command successive cyclic movement

Experiment 2

- Modeled after de Villiers *et al.* testing comprehension of ADJ+ARG structures
- Designed to test whether those children who interpret lower clause questions principally also produce medial wh-questions

Experiment 3

- To test long-distance question comprehension
- Testing children who give 'downstairs' answers to questions correctly interpret long-distance questions

Experiment 4

- Designed to explore why children misinterpreted the ADJ+ARG constructions
- Possibly a result of pragmatic difficulties

Method

- 15 English-speaking children between the ages of three years old and four years eight months.
- Short skits were acted out by two experimenters using toys and puppets to elicit responses from the subjects

Results from Experiment 1

Table 1. Production of Argument and Adjunct Questions by Individual Subjects

subject	age	adjunct	argument (Sub/Obj)
Kelly	4;8	✓ (4/5)	✓
Leah	4;7	✓ (3/5)	✓
Noah 1	4;6	✓ (7/9)	✓
Anne	4;4	X	✓
Alex 1	4;4	✓ (3/3)	✓
Dano	4;3	✓ (4/4)	✓
Aisha	4;1	✓ (3/3)	✓
Bryan	3;11	✓ (4/4)	✓
Aaron	3;8	X	✓
Daniel	3;5	X	X
Noah 2	3;4	X	X
Emma	3;4	X	X
Alex 2	3;4	X	X
Tanya	3;3	X	X
Rachel	3;0	X	X

Results from Experiment 2

Table 2. Comparison of Downstairs Responses versus Production of Medial-wh Responses

subject	age	downstairs responses	medial wh-questions
Kelly	4;8	2/4	no
Leah	4;7	0/4	no
Noah 1	4;6	0/4	yes
Anne	4;4	3/4	no
Alex 1	4;4	1/4	no
Dano	4;3	1/4	no
Aisha	4;1	4/4	yes
Bryan	3;11	3/4	no
Aaron	3;8	1/4	no
Daniel	3;5	4/4	—
Noah 2	3;4	4/4	—
Emma	3;4	3/4	—
Alex 2	3;4	4/4	—
Tanya	3;3	4/4	—
Rachel	3;0	4/4	—

Results from Experiment 3

What did he say \emptyset was in the box?

| |
(scope marker) (true wh-phrase)

- The nine youngest children from the original group of 15
- Not a single error was made in each of the three trials per child

Results from Experiment 4

Table 4. Comparison of Responses Experiments 2 and 4

subject	age	upstairs responses experiment 2	upstairs responses experiment 4
Katherine	4;11	2/4	4/4
Kelly	4;8	2/4	4/4
Aisha	4;1	0/4	3/4
Bryan	3;11	1/4	4/5
Daniel	3;5	0/4	3/4
Noah 2	3;4	0/4	4/5
Emma	3;4	1/4	3/6
Alex 2	3;4	0/4	0/2
Tanya	3;3	0/4	3/4
Rachel	3;0	1/4	1/4

Conclusion

- We can conclude that successive cyclic movement is available to young children
- English possibly starts out as a scope-marking language like German, and then changes

From here...

- We still do not know why children made incorrect responses to the ADJ+ARG combination in experiments 2 and 4
- We can further implications of scope-marking languages towards a more unified explanation of successive cyclic movement