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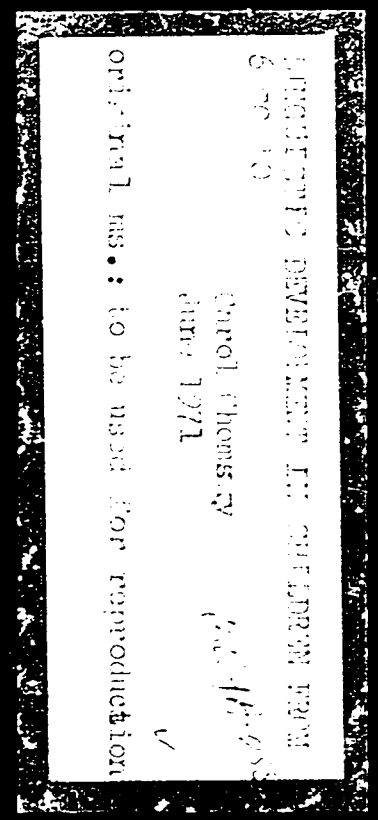
ABSTRACT

Language acquisition in children, ages 6 to 10 years, and their linguistic competence with respect to complex aspects of English syntax, are studied. The nature of specific disparities between adult and child grammar are discussed, and the gradual reduction of these disparities as the children's knowledge of language increases is traced. In all, 36 children are tested by means of psycholinguistic experiments for knowledge of 8 complex syntactic structures; 5 of the structures prove to be acquired in sequence, revealing 5 developmental stages in syntax acquisition. Of particular interest is the regular order of acquisition of structures, accompanied by considerable variation in rate of acquisition. The range of ages at each linguistic stage is considerable. The children's exposure to written language as complex language inputs is examined in relation to linguistic development rate. Reading background and current reading activity are surveyed through interviews with both children and parents and through daily records of the children's reading (and listening) over a one-week period. Information is given on amount and complexity of independent reading and listening, background in children's literature, and recall and recognition of books. Lists of books read and named are included. A formula was developed and applied to 150 books and magazines reported to judge reading complexity levels. Methods are assesed, and relationships discussed. Results show a strong correlation between reading-exposure measures and language development. (Author/CK)



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1/10/72

December 14, 1971

Dr. Richard McCann
Director, Educational Research
Region I -Office of Education
Dept. of Health, Education and Welfare
Boston, Mass. 02203

Dear Dick,

Under separate cover I am mailing out today eight copies of my final report of Project No. 9-A-055.

The original manuscript is placed in a spring binder, for your use in duplicating. The other seven copies are bound with plastic combs.

I prepared a summary, as you requested in your letter of Dec. 8. This 300 word summary appears as the Introduction on p. 1.

It has been pleasant working with you. I'm sure we will be in touch in the future.

Sincerely,

Carol Chomsky

Carol Chomsky
Research Associate

FINAL REPORT
Project No. 9-A-055
Grant No. OEG-1-9-090055-0114(010)

LINGUISTIC DEVELOPMENT IN CHILDREN FROM 6 TO 10

Carol Chomsky
Radcliffe Institute
Cambridge, Massachusetts

June 24, 1971

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

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U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

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I. INTRODUCTION

This study deals with language acquisition in children between the ages of 6 and 10, investigating their linguistic competence with respect to complex aspects of English syntax. The nature of specific disparities between adult grammar and child grammar are discussed in some detail, and the gradual reduction of these disparities as the children's knowledge of their native language increases is traced. 36 children between 6 and 10 are tested by means of psycholinguistic experimentation for knowledge of 8 complex syntactic structures. 5 of the structures prove to be acquired in sequence, revealing 5 developmental stages in acquisition of syntax. Of particular interest is the regular order of acquisition of structures, accompanied by considerable variation in rate of acquisition in different children. The range of ages at each linguistic stage is considerable.

The children's exposure to the written language as a source of complex language inputs is examined for its relation to rate of linguistic development. Their reading background and current reading activity are surveyed through interviews with both children and parents, and through daily records kept at home of all reading (and listening to books read aloud) engaged in by the children over a one-week period. Detailed information is presented on amount and complexity of independent reading (and listening), background in children's literature, and recall and recognitioncof books read and heard. Lists of books read and named by the children are included. In order to judge the extent of the children's current reading at different complexity levels, a formula for measuring syntactic complexity was developed and applied to 150 books and magazines reported by the children in their week's record of daily reading. The relative effectiveness of the various methods used to obtain reading information is assessed, and the relations between linguistic development, the reading measures, IQ and SES are discussed. Our results show a strong correlation between the various reading-exposure measures and language development.

II. LINGUISTIC STUDY

The linguistic section of this study tests the linguistic competence, or implicit syntactic knowledge, of 36 children between the ages of 6 and 10, with respect to 8 relatively complex syntactic structures:

1-The doll is easy to see.
2-Bozo promises Donald to stand on the book.
3-Seymour asked Gloria what to paint.
4-Mother scolded Gloria for answering the phone, and I would have done the same.
5-Mother scolded Gloria for answering the phone, although I would have done the same.
6-John hit Bill, and then Peter hit HIM.
7-The dog isn't STANDING on the table.
The dog isn't standing on the TABLE.
8-The cowboy brushed the horse after eating dinner.
The cowboy surprised the horse by eating an apple.

Techniques of psycholinguistic experimentation are employed to elicit information from the child by direct interviewing. The approach and experimental design are those described in full by this author in The Acquisition of Syntax in Children from 5 to 10 (A of S)* Briefly, the child's interpretations of test sentences presented to him are judged by having him carry out tasks, manipulate toys, identify pictures, engage in conversation, and so on. New tests were developed as part of this study for those constructions tested for the first time here. These tests are described below in the discussion section for each construction.

For our purposes here, the notion of linguistic complexity is based on amount of knowledge required to interpret a construction. Those constructions which involve more knowledge are considered to be more complex; we assume that, of a series of related structures, those structures that children consistently learn later require them to know more.

This aspect of linguistic complexity does not necessarily have implications for other psycholinguistic domains. Because a construction involves later-learned or highly specific syntactic rules does not mean that it necessarily imposes a greater burden on the user, once the rules involved are fully mastered. Some of our constructions appear difficult for adults and some do not, for a variety of reasons. Questions related to performance in adults, in whom differences which are important to the learner may well have been eclipsed, should be considered a separate, though related, line of inquiry.

Sample of children

The children in this study were drawn from an elementary school in Cambridge, Massachusetts which is predominantly middle-class, but has, never-

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*Chomsky, C., The Acquisition of Syntax in Children from 5 to 10, MIT Press, 1969.

theless, some range in the socio-economic background of the children. 36 children from grades K-4 were selected according to the following formula, to ensure a representative sample in terms of age and reading level. Using the most recent score from standardized reading tests on the school record card, the total population in K-4 at the school was divided into 3 groups (high, medium, low). Each of these groups was further divided by age into 3 groups (young, medium, old), yielding 9 cells. Four children were selected at random from each cell, yielding 36 children. Two children who dropped out were replaced from their respective cells.

A listing of the children by age (at time of linguistic interview), showing basic information such as grade, reading level, IQ, SES, etc. is presented in Table SAM1, App. p¶1.

Interviewing procedure

The children were interviewed by the author and an assistant in the fall of 1969. Children were interviewed individually, at school, each interview lasting about a half hour. The complete interview is presented in the App. p¶2-8 . The ask portion of the interview was presented first because it required the presence of a second child as a conversational partner for the child being interviewed. The child who had just completed his interview remained to serve as partner for the new subject. The interviews were tape recorded for later transcription, and note-taking was kept to a minimum.

EASY TO SEE

Interview

Initial setting up

Place on the table in front of the child a doll with eyes that close and open, in lying down position with eyes closed.

Interview

Is this doll easy to see or hard to see?
Why?
Would you make her easy/hard to see.

Discussion

Test construction: The doll is easy to see.

Structural feature tested: subject and object assignment to infinitival verb (see) in easy to see construction.
subject = "someone else"
object = doll

In this interview the child's ability to determine the grammatical relations which hold among the words in sentences (Ss) of the form The doll is easy to see is tested. This construction has been discussed and tested with young children by 3 different researchers to date*. Their separate results confirm its usefulness as an indicator of syntactic development in children of elementary school age.

The complexity of this construction derives from the fact that the grammatical relations among its words are not expressed directly in its surface structure. Of the two constructions

(a) The doll is eager to see.
(b) The doll is easy to see.

which look alike on the surface, only (a) retains in its surface structure the underlying relations of subject and verb. doll is the subject of sentence (a), and the underlying subject of the complement verb see as well;

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* Cromer, R.F., "'Children are nice to understand': surface structure clues for the recovery of a deep structure", Br. J. Psychol. (1970), 61, 3, pp. 397-408.
Kessel, F.S., "The role of syntax in children's comprehension from ages six to twelve," Monographs of the Society for Research in Child Development, Ser. no. 139, 35, 6, Sept. 1970.
Chomsky, C. The Acquisition of Syntax in Children from 5 to 10, MIT Press, 1969.

(a) expresses this in its surface structure by normal word order of subject precedes verb. In (b), however, the word order is misleading. doll is actually the underlying object of the complement verb see, for in (b) it is easy for someone else to see the doll. The underlying subject of see is omitted in (b)'s surface structure, and the listener must fill it in for himself as "someone else". The child who has not yet learned to recognize the underlying difference in structure of these two superficially similar Ss will interpret them both according to surface structure, and report that in (b), as well as (a), it is the doll who is doing the seeing. Such a child should interpret (b) incorrectly to mean "It is easy for the doll to see", instead of "It is easy for someone else to see the doll".

The experiment consisted of asking the child whether a doll whose eyes were closed was easy to see or hard to see. (Use of a blindfolded doll in a former experiment by this writer was discontinued because the blindfold proved to be too strong a cue.) The doll was the type whose eyes close when it is lying down. The doll was placed lying down, eyes closed, on the table and the experimenter asked:

1. Is this doll easy to see or hard to see?
2. Why?
3. Would you make her easy/hard to see. (choice of easy/hard reflects child's answer to question 1)

The child who interpreted the S correctly answered EASY TO SEE, supported his correct interpretation in answer to q. 2 (because she's right there in front of me), and in response to q. 3 hid the doll under the table, covered his eyes, or some similar act.

The child who misinterpreted the S answered HARD TO SEE, supported this interpretation in answer to q. 2 (her eyes are closed so she can't see), and in response to q. 3 opened the doll's eyes.

Several children answered EASY TO SEE, but showed in the ensuing discussion that they were misinterpreting the S. These children (5.9, *5.11, 6.10) were scored incorrect. E.g.,

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6.10

Is this doll easy to see or hard to see?
EASY
Would you make her hard to see.
(turns her over onto her stomach)
Ok. Now that she's hard to see, who doesn't see - you or her?
HER
And when she was easy to see, who could see - you or her?
HER

---

*5.11

Can you tell me, is this doll easy to see or hard to see?
EASY
Would you make her hard to see.
Well, THAT'S HARD.
What?
KNOCKING ON THE DOOR AND SHE DOESN'T ANSWER
Does that make her hard to see?
RIGHT
Why?
CAUSE SHE HAS NO WINDOWS
Oh. You're outside the door?
UH-HUH
Ok. So that if I say that the doll is hard to see, who's having a hard time seeing?
THE DOLL, BECAUSE SHE DOESN'T HAVE ANY WINDOWS. SHE CAN'T SEE.

Results

This construction was fairly easy for the children. 31 succeeded at it, and only 5 failed (5.9', *5.11, *6.0, 6.10, 7.1). The children's performance is recorded in Fig. ETS1.

Incorrect	Correct		
5.9'	5.9	7.4	*8.11
*5.11	*5.9	*7.6	*8.11'
*6.0	*5.10	*7.8	9.4
6.10	6.1	*7.9	*9.5
7.1	*6.3	7.10	*9.5'
	6.8	*8.0	*9.6
	*6.9	*8.3	9.8
	7.2	8.4	*9.9
	*7.2	8.6	9.9
	*7.3	8.6'	10.0
		8.10	
n=5	n=31		

FIG. ETS 1. Children's performance on test S The doll is easy to see.

Incorrect: assigned doll as subject of see
Correct: assigned doll as object of see

Everyone over age 7.1 succeeded with this construction, and below that age there was mixed success and failure. These results show greater competence among children in the age group than was found in this writer's previous experiment using the same construction (A of S). We attribute this dif-

ference to improvement in experimental technique and consider the current results more accurate. It is of particular significance that with the improved experimental procedure, this construction fits into the developmental sequence outlined at the end of the Linguistic Study section of this report. The method of testing used in A of S did not yield results relevant to developmental sequence.

In summary we find that all children over the age of 7.1 know this construction, and that approximately half of the children below this age do not. Our sample did not include children young enough to observe onset of acquisition. Later we will see that lack of competence in this construction constitutes Stage 1 in our developmental sequence.

PROMISE

Interview

Initial setting up

Place on the table in front of the child a book, and the figures of Donald Duck and Bozo the Clown.

Interview

1. Establish that the child knows the meaning of promise.

Can you tell me what you would say to your friend if you promise him that you'll call him up this afternoon? How would you say that to him? You want to promise him that you'll call him up this afternoon. What would you say to him?

What do you mean when you make somebody a promise?

2. Have child identify the dolls.

Can you tell me who this is? (Indicate Donald Duck)
And this? (Indicate Bozo)

3. Practice sentences.

Now I want you to make them do some things, and I'll tell you what. OK?

Bozo wants to do a somersault...Make him do it.
Bozo wants Donald to do a somersault...Make him do it.
Donald decides to stand on the book...Make him do it.
Donald says he's going to lie down...Have him do it.

4. Test sentences.

Bozo promises Donald to stand on the book...Make him do it.
Donald promises Bozo to hop up and down...Make him hop.
Donald promises Bozo to lie down...Have him lie down.
Bozo promises Donald to do a somersault...Make him do it.
Donald promises Bozo to stand on the book...Make him do it.

Discussion

Test Construction: Bozo promises Donald to stand on the book.

Structural Feature Tested: Effect of main verb promise on subject assignment to infinitival complement verb.

In this interview the child's knowledge of a particular syntactic structure associated with the word promise is examined. We test his ability to identify the implicit subject of an infinitival complement verb following promise in the main clause of a S. As discussed in detail in A of S the verb promise breaks a general rule of English in the following construction:

(a) Bozo promised Donald to stand on the book.
(b) Bozo told Donald to stand on the book.

The implicit subject of stand in (a) is Bozo, i.e., Bozo promised Donald that he, Bozo, would stand on the book. In (b), as in most other Ss of this form in English, the implicit subject of stand is Donald, i.e., it is Donald who is to stand on the book.

Our expectation is that children who have not yet learned this exceptional feature of the verb promise will interpret Ss such as (a) according to the structure of (b). They will report that in (a) it is Donald who is to stand on the book, that Bozo promises Donald, that he, Donald, can stand on the book. This was found to be the case in a previous experiment carried out by this writer (reported in A of S) in which some children still misinterpreted the construction up to the age of 8½, and uniform success was achieved only above this age.

To my knowledge this construction has not been retested by other researchers. The experimental procedure described here differs slightly from the original where the original proved to be somewhat confusing for the children. The current experiment confirms the usefulness of this construction as an indicator of syntactic development.

The experiment consisted of having the child manipulate two toy figures to illustrate the action of a series of test Ss. The figures used were Bozo the Clown and Donald Duck, and a book was provided for them to stand on.

First it was determined that the child knew the meaning of the word promise:

> Can you tell me what you would say to your friend if you promise him that you'll call him up this afternoon? How would you say that to him? You want to promise him that you'll call him up this afternoon. What would you say to him? What do you mean when you make somebody a promise? What's special about a promise?

Then the child named the two figures:

> Can you tell me who this is? (Indicate Donald Duck)
> And this? (Indicate Bozo)

Next some practice Ss were given to familiarize the child with the actions and with the 'intentional' nature of the test Ss. In the test Ss someone states an intention, and it is the carrying out of that intention that the child has to illustrate. That is, in "Bozo promises Donald to stand on the book", the child has to show who stands on the book. The practice Ss introduce this notion:

Bozo wants to do a somersault...Make him do it.
Bozo wants Donald to do a somersault...Make him do it.
Donald decides to stand on the book...Make him do it.
Donald says he's going to lie down...Have him do it.

Then followed the test Ss:

Bozo promises Donald to stand on the book...Make him do it.
Donald promises Bozo to hop up and down...Make him hop.
Donald promises Bozo to lie down...Have him lie down.
Bozo promises Donald to do a somersault...Make him do it.
Donald promises Bozo to stand on the book...Make him do it.

The Ss were repeated freely for the children who required repetitions, or who seemed to hesitate.

Whereas the original test (A of S) included tell Ss interspersed among the promise Ss, no tell Ss were included in this experiment. The switching back and forth between the different structures was confusing for some children, and we wanted to try a run without complicating the task in this way. In fact the children did better on the current run than on the prior one, and performed with greater consistency.

Results

This construction was relatively easy for the children. Two-thirds of them succeeded at it (24 children), and one-third (12 children) failed. The failers were all under 8 years old, (with only one exception), with failure being the rule for the 5's, evenly divided for the 6's, and the exception for the 7's. The children's performance is recorded in Fig. PR1.

Incorrect	Correct	
5.9	6.1	8.6
*5.9	6.8	8.6'
5.9'	6.10	8.10
*5.10	7.2	*8.11
*5.11	*7.3	*8.11'
*6.0	7.4	9.4
*6.3	*7.6	*9.5
*6.9	*7.8	*9.6
7.1	*7.9	9.8
*7.2	*8.0	*9.9
7.10	*8.3	9.9
*9.5'	8.4	10.0
N = 12	N = 24	

FIG. PR1. Children's Performance on Promise Construction in 5 Test Ss:

Bozo promised Donald to stand on the box.

Incorrect: All Ss wrong.
Correct: ≥4 Ss correct.

Scoring

Children were scored correct if they succeeded with at least 4 of the 5 test Ss. Of the 24 children who succeeded, most were consistent: 20 had all 5 Ss correct, and only 4 had 4 out of 5 correct. The 12 children who failed got all 5 Ss wrong with only one exception (7.10 scored 3 wrong out of 5). The children's consistency in their answers seems to recommend the test procedure used here over that employed in A of S.

Although all children under 6.1 failed this construction, no significance in terms of age of onset of acquisition is attributed to this outcome. There is only a 3 month age-range of these children in our sample (5.9-6.0), and our prior run (A of S) did contain several children as young as 5.2 who succeeded. We assume that our sample did not include children young enough to enable us to observe onset of acquisition.

In summary, we find that most children over 7½ know this construction, and that below this age approximately 2/3 do not. Later we will see that this construction enters into our developmental sequence, competence in it distinguishing children in Stage 2 from those in Stage 3.

ASK

Interview

Initial Setting Up

Two children present, one of whom has already been interviewed. Place on table some pencils, a doll, box of food, crayons, tray, book, figures of Donald Duck, Pluto Pup and Bozo.

Interview

I'll tell you what you're going to do here. We're going to play some games with the things on the table. (PICK UP DONALD DUCK.) For example, you'll make him do some things. Can you tell me who he is? And you'll play with this doll/dog, too. Later you'll feed her/him. But first, I'd like you to ask X some things, like:

Ask X what time it is.
Ask X his last name.
Ask X the color of the doll's dress.
O.K., now tell X something. Tell X how many pencils there are here.
And ask X what color this crayon is.
Ask X who this is (indicate Bozo).
And tell X what color this book is.

Now will you tell X to stand up?
Ask X to walk across the room.
Ask X to come back and sit down.

Ask X what's in this box. (POUR FOOD ONTO TRAY.)

You did that very nicely, keeping straight whether you're supposed to ask or tell. (IF APPLICABLE) Now I want you to do some more asking and telling, connected with feeding the doll. She's hungry, and you're going to feed her this food. Sometimes X will feed her, too. Listen, and I'll tell you how to do it.

S, will you first feed her the tomato? (OMIT HALF THE TIME.)
Alright, S, now will you ask X what to feed her?
(TO X) X, will you tell S what to feed her?
Ask X what to feed her now.
Tell X what to feed her.
(TO X) Tell S what to feed her.
Ask X what food to give her now.
Ask X what you should feed her now.

Ask X what food to put back in the box.
Ask X what to put back next.
(TO X) X, ask S what to put back. (etc., until food is all put away)

Now, ask X to stand up.
And ask X to go back to class.

Picture Identification

Present pairs of pictures for identification. (See pictures in Appendix, p. 4,5)

Pair 1:
Which picture shows the girl asking the boy what to paint?
Look at both pictures before answering.
What picture shows the girl asking the boy what to paint?
What is she saying to him?

Pair 2:
Which picture shows the boy asking the girl what shoes to wear?
What is he saying to her?

Discussion

Test Constructions:

1) Simple: Ask/tell X what time it is.
Ask/tell X her last name.
2) Complex: Ask/tell X what to feed the doll.

Structural Features Tested:

1) Ask/tell differentiation.
2) Effect of main verb ask on subject assignment to infinitival verb in wh- complement clause.

In this interview a number of aspects of the child's knowledge of the verb ask are examined. Specifically, we test the child's ability to:

1. Differentiate ask and tell before simple complement clauses: wh- clause, subject supplied: Ask/tell X what time it is.
Noun Phrase: Ask/tell X her last name.

2. Differentiate ask and tell before a complex clause: wh- clause, subject omitted: Ask/tell X what to feed the doll.

3. Recover the deleted subject in 2) differently following ask and tell.

These 3 tasks are listed in increasing order of difficulty for the child. The interview consists of a conversational portion which tests all three of these abilities, and a picture identification portion which tests only 2) and 3).

The nature of the complexity in these constructions has been discussed at length by this author elsewhere (A of S), and will be reviewed only briefly here. These constructions, or the child's handling of the verb ask in general, prove to be a particularly good indicator of syntactic development. The present study confirms this author's previous results (A of S), as does a separate study of the same phenomena carried out by Kramer, Kopf and Luria.* The failure of a study by Kessel** to reveal the same developmental pattern will be discussed below.

The verb ask breaks a general rule of English in the following construction:

4. Seymour asked Gloria what to eat.

5. Seymour told Gloria what to eat.

The implicit subject of eat in 4) is Seymour, i.e., the correct paraphrase of this S is 'Seymour asked Gloria what he should eat.' In 5) the implicit subject of eat is Gloria, i.e., 'Seymour told Gloria what she should eat.' 5) conforms to a rule of great generality in English, and is thereby the simpler construction: the implicit subject of the infinitival complement verb is the first NP preceding it. In 4) the implicit subject of the infinitival complement verb is an NP farther away, a rare construction in English found with only a very few verbs such as promise and ask. Children learn the 4) construction later than the 5) construction, and until such time as 4) is acquired, interpret 4) according to the 5) rule. The paraphrase of 4) for such children is 'Seymour asked Gloria what she was going to eat. This interpretation persists in some children until age 10 or later.

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*Kramer, P.E., Kopf, E., and Luria, Z., "The Development of Competence in an Exceptional Language Structure in Older Children and Young Adults", Child Development, (in press).

**Kessel, F.S., "The Role of Syntax in Children's Comprehension from Ages Six to Twelve", Monographs of the Society for Research in Child Development, Ser. No. 139, 35, 6, September 1970.

Furthermore, what lends this construction its particular significance as a developmental indicator is the fact that acquisition of the syntactic rule governing S 4) appears to be part of a broader invariant developmental sequence. It is the final step in a four-step sequence of acquisition of grammatical rules governing the verb ask, where the several structures involved in the sequence (see 1), 2), 3) above) form a clear Guttman scale. Ability to handle construction 1) above is acquired first, then construction 2). Construction 3), our example in the preceding paragraph, is acquired last.

The pattern of successes and failures in dealing with these three constructions is as follows:

	1	2	3
failure	-	-	-
↓	+	-	-
	+	+	-
success	+	+	+

1) differentiation of ask/tell before the simple constructions*
2) differentiation of ask/tell before the complex construction
3) assignment of the correct missing subject following ask/tell in complex construction

Failure on 1) implies failure on 2) and 3); success on 2) implies success on 1); success on 3) implies success on 1) and 2). There are no children who succeed on 2) and fail at 1); who succeed on 3) and fail at 1) or 2); or who fail at 2) and succeed at 1) and 3). We conclude that the children attain competence on these tasks in the order listed. The grammatical development is observed to take place in an orderly fashion, from simple to complex, according to an invariant sequence.

The experiment consisted of having 2 children who knew each other well carry out a number of tasks according to instruction. Only one child was being tested, the second child serving as a conversational partner for the interviewee.

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*No difference in achievement was found in this study for the two simple constructions: wh- clause, subject supplied (Ask X what time it is.) and noun phrase (Ask X her last name.). They are therefore classed together as 'simple' constructions. Since the difference reported in A of S was marginal (only 2 cases) and not repeated here, we omit reference to it in our present developmental stages.

Normally the partner was a child who had just finished serving as subject for the whole linguistic interview, so he was familiar with the procedure. This experiment was made the opening one in the half-hour linguistic interview so that the presence of the second 'experienced' child could serve to break the ice. It worked very well.

The two children were seated at a table on which were placed a doll, pencils, crayons, a book, a box of play foods, a tray, and figures of Donald Duck, Pluto Pup and Bozo. We explained to the child that he was going to play some games with the things on the table, feed the doll (or Pluto Pup if he preferred), and so on, and then proceeded to the instructions themselves. (See Interview for list of instructions.) Both the simple and the complex constructions mentioned above were included, with a mixture of ask instructions and tell instructions. The opening instruction was always ask. Also included was the infinitival complement construction 'Ask X to stand up'. As described in A of S, the interview was carried out in an informal conversational manner, with repetitions, instructions being added at the child's point of difficulty, discussion of confusions and inconsistencies, and a special attempt being made to draw the child's attention to his 'errors'. All in all, maximum help was given the child to express what he knew.

After the conversational portion of the interview was concluded, the partner left, and the subject was shown two pairs of pictures presented in Appendix p.4,5. He was instructed to look at both pictures of a pair before deciding on an answer.

For Pair 1 he was asked:

Which picture shows the girl asking the boy what to paint?
What is she saying to him?

For Pair 2:

Which picture shows the boy asking the girl what shoes to wear?
What is he saying?

The pictures serve to test the complex construction only, whereas the conversational portion of the interview tests both the simple and the complex constructions.

Scoring

The scoring method has to determine three things from the children's responses: whether the child differentiates ask and tell before the simple construction, whether he differentiates ask and

tell before the complex construction, and how he assigns a subject to the infinitival complement clause.

In the conversational portion of the interview, scoring was considered separately for the simple and complex constructions.

Simple Ask X what time it is.

differentiates	+	WHAT TIME IS IT?
differentiates	-	I DON'T KNOW 11 O' CLOCK

Complex Ask X what to feed the doll.

differentiates	+,	subj ass.	+	WHAT SHOULD I FEED THE DOLL?
"	+,	"	-	WHAT ARE YOU GOING TO FEED THE DOLL? WHAT DO YOU WANT TO FEED THE DOLL?
"	-,	"	-	THE TOMATO.

With the pictures, we judge both picture choice and the answer to the question "What is the boy or girl in the picture saying?" Three patterns emerge.

			Pict. Choice	Quote
differentitates	+,	subj ass. +	Correct	WHAT SHOULD I PAINT?
"	+,	subj ass. -	Incorrect	WHAT ARE YOU GOING TO PAINT?
"	-,	" -	Incorrect	A HOUSE.

Results. The results of this experiment confirm the findings reported in A of S (with the exception of one marginal stage which was not observed here). Children can be classified according to four stages of development in their acquisition of structures involving the word ask.* The Stage A1 child has acquired neither the simple nor the complex construction (1-3 above); the Stage A2 child has acquired the simple construction only; the Stage A3 child has acquired the simple construction, and partial knowledge of the complex one (1), 2)

*The 4 ask stages are designated A1 to A4. This is done to distinguish the ask stages from overall stages of development which later will be designated 1-5.

above); the Stage A4 child has acquired both constructions fully (1,3 above).

The distribution of the children by age in each of the four stages is shown in Fig. ASK1.

	ages of children	Simple Ss (subj. supplied)	Complex Ss (subject deleted)	
		ask/tell differentiation	ask/tell differentiation	subject assignment
Stage A1 n=6	5.9 *6.3 *5.11 *6.9 *6.0 7.1	-	-	-
Stage A2 n=6	5.9' 6.8 *5.10 *7.3 6.1 *9.5'	+	-	-
Stage A3 n=13	*5.9 *7.9 6.10 7.10 *7.2 8.6 7.4 *9.9 ---transition--- *7.8 9.4 *8.0 *9.6 8.10	+	+	-
Stage A4 n=11	7.2 *8.11' *7.6 *9.5 *8.3 9.8 8.4 9.9 8.6' 10.0 *8.11	+	+	+

Fig. ASK1. Stages of development in acquisition of ask constructions

Chart shows children's performance in differentiating ask and tell, and in assigning a subject to an infinitival complement verb.

Simple Ss: Ask/tell X what time it is.
+ differentiates a/t
- does not differentiate a/t

Complex Ss: Ask/tell X what to feed the doll.
+ differentiates a/t
- does not differentiate a/t
+ correct subj. assignment
- incorrect subj. assignment

The striking feature of these results is the variability in age of acquisition. Children of all ages are found in each stage, with two exceptions. In Stage A1 the older children are missing (oldest 7.1), and Stage A4 lacks very young children (youngest 7.2). Stages A2 and A3 contain the full age range, 5.9'-9.5', and *5.9-*9.9.

The 'transition' children in Stage A3 are children whose performance on the picture test was better than their conversational performance. They were Stage A3 in conversation, and Stage A4 with the pictures. They are considered to be in transition from A3 to A4.

It is of interest that when the picture performance differed in Stage from the conversational performance, which occurred in 6 cases, the picture performance was almost always better. Five of the six cases are the 'transition' children between A3 and A4. The sixth case was a boy (7.4) who achieved Stage A3 in conversation and only A2 with the pictures. (This child is a non-reader with an IQ of 123). The reason for the relative ease of the picture task as compared with the conversational task are discussed at some length in A of S.

Stage A1 Children - 6 children: 5.9-7.1

These children fail to differentiate between ask and tell for the simple constructions, giving either all ask responses or all tell responses. The responses to the complex construction are ordinarily all tell responses. The children are unable to correct their 'errors' when asked to reconsider.

Children in Stage A1 who consistently tell rather than ask do so even under conditions slanted to asking. 5.9, for example, had ASK instructions first, and was faced with questions to which he didn't know the answers; nevertheless, he persisted in telling throughout. His final response is quite revealing.

Ask Laurie what time it is.
I DON'T KNOW.
Ask Laurie her last name.
I DON'T KNOW WHAT HER LAST NAME IS.
Ask her the color of the dog's collar.
YELLOW
Tell Laurie how many pencils there are here.
THREE
Ask her what color this crayon is.
YELLOW
O.K. Did you ask her or tell her what color the crayon is?
AH, ASK

This exchange answers the objection sometimes put forward that the children form a mind set for TELL if a tell instruction comes first. It also answers the objection that children don't expect to request information that they already know. Here he didn't know, and still he didn't ask.

One objection of course remains: that in the interview situation, the child expects to give information, not ask for it. The pictures remove this obstacle, and we do find better performance with the pictures for some children.

Stage A2 Children - 6 children: 5.9'-9.5'

These children differentiate between ask and tell for the simple constructions, but not for the complex one. Their responses to the complex construction are all tell responses, and they choose the missing subject, quite naturally, as required by tell.

Stage A3 Children - 13 children: *5.9-*9.9

These children differentiate between ask and tell for both the simple constructions and the complex one, but choose the missing subject incorrectly in the complex construction. They appropriately ask when instructed to, but choose the missing subject according to the rule for tell. The question they form in response to "Ask X what to feed the doll" is

What are you going to feed the doll?
What do you want to feed the doll?

instead of

What should I feed the doll?

Stage A4 Children - 11 children: 7.2-10.0

These children perform correctly for all constructions. They ask and tell appropriately, and for the complex construction assign the correct subject: What should I feed the doll?

The trouble that young children have with ask and tell is familiar to parents and teachers. Many pre-schoolers misuse the verbs in their own speech, and some continue to do so into the school years. An example close at hand is my own 4 year

old son who repeatedly says things like:

I'M GONNA TELL DADDY IF HE WANTS TO GO OUTSIDE.
DADDY, DO YOU WANT TO GO OUTSIDE?

The verb ask presents a particular kind of difficulty which is amenable to experimentation, and yields excellent results in revealing developmental stages.

One researcher, Kessel, who carried out a related experiment with ask, reports a failure to find distinct developmental stages such as these,and an earlier age of acquisition of what we call the complex construction, Stage A4.* In order to avoid some of the disadvantages inherent in the interview situation, Kessel used only a picture test, and no conversational interview. His experiment was set up quite differently from the picture portion of ours, with different syntactic competence being examined. We relate his experiment to ours in the following way.

Kessel fails to distinguish two separate tasks that are basic to our investigation:

6. Recognition of the ask/tell distinction.

7. Recognition that a missing subject after ask is recovered according to a special rule, once 6. is achieved.

Kessel interprets, for example, that the exchange

Ask Eric his last name.
  HANDEL
Ask Eric who his teacher is.
  MISS TURNER

indicates 'a failure to violate the MDP for the question sense of ask'** i.e., a failure to choose the far noun phrase as subject of the infinitival complement verb. However, there is no infinitival verb in the complement clause his last name (shortened from 'what his last name is') or who his teacher is, and hence no deleted subject to be recovered from the main clause. These Ss require merely that the children differentiate

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*Kessel, Frank, op. cit.

**Kessel, op. cit., p. 8. MDP refers to the Minimal Distance Principle, by which the nearest noun phrase is selected as subject of an infinitival complement verb.

ask from tell, which Kessel does not appear to recognize. Failure to distinguish these two tasks and the separate syntactic rules which they utilize leads to a substantial difference in experimental procedure.

Because Kessel does not take account of the difference between 6) and 7), he doesn't test for it. He tests for 6) only, an early acquisition, never presenting a task which requires the syntactic rule for 7), a later acquisition. He thus finds that there are no children over 7 who fail at his test, a result entirely in agreement with our own results for 6).

A consideration of Kessel's picture design shows why he is in reality testing only for 6) the basic ask/tell distinction, and not for subject assignment, the more difficult task.* Kessel's picture pairs have one notable feature -- in one of them the subject is confronted with a choice and is clearly asking, and in the other he is pointing, i.e., telling about his decision. As Kramer et al. point out (op. cit.) if the child distinguishes ask from tell at all, regardless of what construction follows it, he will choose the picture correctly. It doesn't matter whether what follows is the simple construction or the complex one. This would account for Kessel's finding that "the presence of a pronoun in the complement clause did not have the expected facilitative effect on task performance" (p. 35). The test sentence might just as well be The boy asks the girl something. What does he ask her? And once the child has chosen his picture on the basis of the boy asking or telling, the subject of the complement verb (if it is missing as in the complex construction) is obvious -- the picture shows you who is doing the reading, or sharpening,** or using the toothpaste. Because the pictures are specific as to ask and tell, the child has only two options for interpreting the complex construction: ask, far subject; tell, near subject.

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*See Kramer, et al., op. cit., for an additional analysis of Kessel's picture design.

**There is a discrepancy between the test S quoted in the interview conversation, p. 36: The girl asks the boy which pencil to sharpen, and the test S listed on pp. 23 and 28, and given with the pictures on p. 63: The boy asks the girl which pencil to sharpen. Since the quoted conversation is the least likely item to be in error (girl asks boy), we assume that this is the S that was used with the children, and that the position of the pictures on p. 63 should be reversed.

There are two ways out of this difficulty. They both allow you to test the complex construction for 7) as well as 6). One is to design your two pictures so that they are ambiguous as to asking and telling (as in this writer's experiment), forcing the child to choose on the basis of how he assigns a subject to the complement verb. This will deflect the decision away from the simple ask/tell distinction to the problem of subject assignment, where it properly belongs. The child now has 4 options: choose near subject, tell; choose near subject, ask; choose far subject, tell; choose far subject, ask. With these options available, the child who can do 6) but not 7) shows up and thereby our Stage A3, missing from Kessel's data, emerges.

The second way out is to use Kessel's pictures as is, with the ask/tell distinction incorporated into their design, but to add 2 more pictures to accommodate the 2 missing options. You now have 4 pictures, a separate one for each interpretation:

The boy asks the girl which book to read.

Picture Shows	Child's S Interpretation	
boy telling, girl reading	tell, near subj	(current pic.)
boy asking, girl reading	ask, near subj	(new pic.)
boy telling, boy reading	tell, far subj	(new pic.)
boy asking, boy reading	ask, far subj	(current pic.)

The first method using only 2 pictures that are non-specific as to asking and telling, seems clearly superior.

One further comment, about Kessel's choice of test Ss. Unfortunately, his test Ss themselves contain clues to the 'right answer' and weight the scales in favor of a correct response. In his test, Kessel includes ask Ss with complement subject deleted: The boy asks the girl what toothpaste to use. This is the crucial test construction. He also includes ask Ss with complement subject present, but always the subject which is correct for ask + infinitive, i.e., the far noun phrase. He includes no ask Ss in which the complement subject is the near noun phrase, which is the 'incorrect' equivalent of ask + infinitive, e.g., The boy asks the girl which bird she is going to feed. He thus 'models', as it were, only the correct interpretation for the crucial test S, weighting the scales in favor of a correct response. Certainly if one chooses to model at all, one must model both the correct and the incorrect interpretations of the critical test Ss. (Better yet would be no modelling at all -- let the child work it out for himself.) Had Kessel tested subject assignment,

this one-sided modelling would no doubt have affected his results. Since he tested only ask/tell distinction, it probably had little effect on the children's performance.

In summary we find four developmental stages in the acquisition of ask with simple and complex constructions. Rate of development appears to be a stronger factor than age in this acquisition, although age enters as a factor at the extremes. In the lowest stage all children are under 7, and in the highest stage all children are 7 or older. In the two intermediate stages there are children of all ages. These ask constructions are valued as a particularly sensitive indicator of syntactic development, and they enter into our overall developmental sequence presented below.

AND/ALTHOUGH

Interview

1. Simple construction: although

I want you to finish some Ss for me. I'll give you the first half and you give me the second half. O.K.? Just finish the Ss anyway that makes sense. It doesn't have to be true.

Although my favorite TV program was on, I...
I stayed up late last night, although...
Although it rained yesterday, I...
I wore a heavy jacket, although...
Although my sister was sick, she...

2. Complex construction: and/although (later on in interview session)

Now here come some real long Ss. Tell me what it is that I would have done in the next S. The S says that I would have done something, and I want you to tell me what the S says I would have done.

The cowboy scolded the horse for running away, and I would have done the same.
What would I have done?

The cowboy scolded the horse for running away, although I would have done the same.
What would I have done?

Mother scolded Seymour/Gloria for answering the phone, and I would have done the same.
What would I have done?

Mother scolded Seymour/Gloria for answering the phone, although I would have done the same.
What would I have done?

Interview comments

Part 2 of this interview was given after the Complement Subject Interview, because it follows naturally from the tasks of that Interview. Complement Subject served as practice for Although, Part 2, and no further warm-up was needed.

Discussion

Test Constructions:

(Simple) Although my favorite TV program was on, I...
(Complex) Mother scolded Gloria for answering the phone, and I would have done the same.
Mother scolded Gloria for answering the phone, although I would have done the same.

Structural Features Tested:

(Simple) Function of *although* as clause introducer.
(Complex) Selection of different verb as referent of *done the same* following *and* and *although*.

In this interview we set out to test the children's ability to choose the referent of *done the same* differently in the Ss:

1) Mother scolded Gloria for answering the phone, and I would have done the same.
2) Mother scolded Gloria for answering the phone, although I would have done the same.

There are two candidate verbs preceding *done the same* which might serve as referent: *scolded* and *answered*. Following *and*, the referent is *scolded*; following *although*, the referent is *answered*; i.e., in 1) I would have scolded Gloria, and in 2) I would have answered the phone.*

Along with testing this 'complex' use of *although*, we tested also the children's knowledge of the simpler use of the word, as in *Although it rained yesterday, I...and I wore a heavy jacket, although...*

No careful experimental technique was devised for testing these constructions. We used S completion for the simple case, and we asked a direct question for the complex case: What does this S say I would have done? There was some question in our minds about the effectiveness of this direct approach, but it appears to have been adequate in this case. The results show interesting developmental patterns, and they fit in very well with the rest of our data.

The simple construction was tested by asking children to

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*This interesting and rather unusual aspect of the word *although* was brought to the author's attention by Adrian Akmajian.

complete a number of Ss orally. The children filled in both the <u>although</u> clause (two Ss), and the main clause (3 Ss).

Although my favorite TV program was on, I...
I stayed up late last night, although...
Although it rained yesterday, I...
I wore a heavy jacket, although...
Although my sister was sick, she...

The complex construction was tested by reading the test Ss to the children, and asking what the S says 'I would have done'.

The cowboy scolded the horse for running away, and I would have done the same.
What would I have done?
The cowboy scolded the horse for running away, although I would have done the same.
What would I have done?

Mother scolded Seymour/Gloria for answering the phone, and I would have done the same.
What would I have done?
Mother scolded Seymour/Gloria for answering the phone, although I would have done the same.
What would I have done?

These long Ss were usually read several times to the children, particularly the younger children, before they were able to formulate an answer. Those who could read were given the Ss typed on cards to follow as we read aloud.

It had been determined in an earlier portion of the linguistic interview (Complement Subject) that all of the children could correctly interpret the shorter S "<u>The cowboy scolded the horse for running away</u>. Who ran away?" None of the children had any trouble assigning <u>horse</u> as subject of <u>running away</u>.

This experiment turned out to be more interesting than anticipated. Not only was the complex <u>although</u> construction very difficult for the children (only 4 children succeeded with it), but the <u>and</u> S, surprisingly enough, proved to be interesting in its own right. Unexpectedly, 23 children failed the <u>and</u> S. Whereas we had set out to test <u>although</u> and included <u>and</u> Ss only for contrast, <u>and</u> itself proved to be a useful test construction.

Results

1. Simple Although

Five Ss were given to the children for oral S completion. Criterion for success was 3 correct out of 5. Only 8 children failed, all of them under 7 years of age. Three children, or ½ of the under 7 age group, were among the 28 passers. Fig. AA1 shows the age distribution of the passers and failers.

Failure	Success	
5.9	*5.9	8.6
5.9'	*6.3	8.6'
*5.10	6.10	8.10
*5.11	7.1	*8.11
*6.0	7.2	*8.11'
	*7.2	
6.1	*7.3	9.4
6.8	7.4	*9.5
*6.9	*7.6	*9.5'
	*7.8	*9.6
	*7.9	9.8
	7.10	*9.9
	*8.0	9.9
	*8.3	10.0
	8.4	
n=6	n=23	

Fig. AA1. Children's Performance on Simple Although Construction.

2. Complex Although

The task for complex although was to choose the referent of done the same from two candidate verbs preceding it in the S:

Mother scolded Gloria for answering the phone, although I would have done the same.

scolded - far candidate
answering - near candidate

The correct choice is the near candidate, answer. Scoring, however, requires some caution, for the children will choose the near candidate from lack of knowledge as well as from knowledge. As we have seen in other constructions such as

promise and ask, the child tends to choose always the near candidate to fill in a deletion when he works from general principles of English. Now in our test S, it is the near candidate (answer) which happens to be the correct one, the one the child would choose also from specific knowledge of the although construction. Since both general principles and specific knowledge of although yield the same answer, how can we determine on what basis the child is choosing? In other words, how do we know if his 'right' answer is arrived at for the right reasons (knowledge of although) or the wrong reasons (general principles)? Fortunately, our and S provides the means for distinguishing. It presents the same construction differing only in the replacement of although by and, and requires the far candidate, scolded, as referent of done the same.

Mother scolded Gloria for answering the phone, and I would have done the same.

The child who correctly chooses the far candidate (scolded) for and shows that he has learned to discard general principles in dealing with this construction. When this child then chooses the near candidate for although we can assume that he does so not from general principles but because he recognizes the function of although in the S.

And indeed we find a pattern of development which supports this hypothesis. The younger children select the near candidate for both and and although; they simply do not know the construction and work from general principles. As age increases, children begin to select the far candidate for both words; they have learned the construction, but not the specific although rule. In the most advanced stage are the children who have learned the specific although rule and distinguish the two cases. Fig. AA2 shows the ages of the children at each stage.

Stage 1 Near Candidate and and although		Stage 2 Far Candidate and and although	Stage 3 Far Candidate, and Near Candidate, although
5.9	7.1	*6.3	*7.6
*5.9	*7.2	7.2	*8.3
5.9'	7.4	8.4	*8.11
5.10	*7.9	8.6'	9.9
*6.0	*8.0	*8.11'	
6.8	8.10	*9.5'	
*6.9	9.4	9.8	
6.10	*9.5	*9.9	
		10.0	
n=16		n=9	n=4

Fig. AA2. Children's Joint Performance on and and Complex Although Constructions.

Stages of development in children's selection of referent for done the same in:

Mother scolded Gloria for answering the phone, and/although I would have done the same.

scolded - far candidate
answering - near candidate

The criterion for success with complex although, then, is choosing the near candidate verb as referent of done the same, while at the same time choosing the far candidate verb for and. Children are scored correct only if all four test Ss are judged correctly. As shown in Fig. AA3 (as well as in Fig. AA2), only four children in our sample achieved this success.

failure		success
5.9	*7.8	*7.6
*5.9	*7.9	*8.3
5.9'	7.10	*8.11
*5.10	*8.0	9.9
*5.11	8.4	
*6.0	8.6	
6.1	8.6'	
*6.3	8.10	
6.8	*8.11'	
*6.9	9.4	
6.10	*9.5	
7.1	*9.5'	
7.2	*9.6	
*7.2	9.8	
*7.3	*9.9	
7.4	10.0	
n=32		n=4

Fig. AA3. Children's Performance on Complex Although Construction.

3. And

Considered separately, the and construction yields interesting results, also. Only 1/3 of the children succeeded at it, ages *6.3-10.0, while 2/3 failed, 5.9-*9.6. Although the age range differs by only 6 months, the median age of the passers (*8.11) is almost two years higher than that of the failers (7.2). Fig. AA4 shows the age distribution of the two groups.

failure		success
5.9	*7.3	*6.3
*5.9	7.4	7.2
5.9'	*7.8	*7.6
*5.10	*7.9	*8.3
*5.11	7.10	8.4
*6.0	*8.0	8.6'
6.1	8.6	*8.11
6.8	8.10	*8.11'
*6.9	9.4	*9.5'
6.10	*9.5	9.8
7.1	*9.6	*9.9
*7.2		9.9
		10.0
n=23		n=13

Fig. AA4. Children's Performance on and Construction.

4. Coordinated Results

The data for simple and complex although considered together show the expected course of development. There are children who know neither construction, and children who know both. There are also many intermediate children who know the simple construction without knowing the complex one. There are, not surprisingly, no children who reverse this order, i.e., who know the complex construction without knowing the simple one. Fig. AA5 shows the age distribution in each category.

	Simple Although	Complex Although	Ages of Children in Each Stage
Stage 1. n=8	-	-	5.9, 5.9', *5.10, *5.11, *6.0, 6.1, 6.8, *6.9
Stage 2. n=24	+	-	*5.9, *6.3, 6.10, 7.1, 7.2, *7.2, *7.3, 7.4, *7.8, *7.9, 7.10, *8.0, 8.4, 8.6, 8.6', 8.10, *8.11', 9.4, *9.5, *9.5', *9.6, 9.8, *9.9, 10.0
Stage 3. n=4	+	+	*7.6, *8.3, *8.11, 9.9

Fig. #5. Stages of Development in Acquisition of Although Constructions.

Simple: Although my favorite TV program was on, I...
Complex: Mother scolded Gloria for answering the phone, although I would have done the same. What would I have done?

\+ success
\- failure

In summary, all children 7 and older succeeded with although in its simple construction, while approximately 3/4 of those under 7 failed. The complex although construction was very difficult for the children and only 4 succeeded at it: *7.6, *8.3, *8.11 and 9.9. Knowledge of the simple construction precedes knowledge of the complex one.

The complex although construction is the second hardest construction in the entire study, and success at it constitutes the highest stage in our overall developmental sequence.

With the and construction, 1/3 of the children succeeded and 2/3 failed. Almost all children under 7 failed; from 7 to 10 the group is divided equally into passers and failers.

CONTRASTIVE STRESS : PRONOUN REFERENCE

Interview

Initial Setting Up

Place on the table in front of the child a toy man, horse and cow; toy foods (eggs and hot dog); a small cork mat. Give the child a toy elephant which he is to manipulate.

Interview

1. Explanation

I want you to have the elephant do some things, like eating, or standing in a certain place. I'll have somebody else, the horse or the cow, do something first, and then the elephant's going to come along and so domething like it. Will you make the elephant do what he's supposed to do? I'll show you what I mean.

2. Practice Sentences

The horse ate the fried eggs (experimenter performs), and then the elephant came along and ate the hot dog (child performs).

The cow jumped onto the mat, and then the elephant came along and jumped onto the mat.

3. Test Sentences

a) The horse pushed the man, and then the elephant came along and pushed 'im.
b) The cow pushed the man, and then the elephant came along and pushed HIM.
c) The cow stood behind the man, and then the elephant came along and stood behind 'im.
d) The horse stood behind the man, and then the elephant came along and stood behind HIM.
e) The cow jumped on top of the man, and then the elephant came along and jumped on top of 'im.
f) The horse jumped on top of the man, and then the elephant came along and jumped on top of HIM.

Interview Comments

Sentences a), c) and e) are read with normal stress. In sentences b), d) and f) the word HIM is strongly stressed for contrast.

In this interview, the child's (C's) task is to make the elephant perform an appropriate action for each S. As the experimenter (E) reads each S, E acts out the first clause, and C acts out the rest of the sentence using the elephant. C holds the elephant throughout the interview.

After reading and acting out clause 1 in each sentence, E replaces the toys on the table before completing the sentence. It is important for E to finish his acting out and remove his hands from the toys before C interprets and acts out his half of the sentence. All toys should stand free on the table while the child decides on his S interpretation, to avoid influencing his decision by extra-linguistic cues.

Discussion

Test Construction:

John hit Bill, and then Peter hit him. (him = Bill)
John hit Bill, and then Peter hit HIM. (HIM = John)

Structural Feature Tested:

Effect of contrastive stress on pronoun reference.

In this interview the children's knowledge of one effect of contrastive stress is examined. Specifically, we study the effect of contrastive stress on pronoun reference in simple coordinated sentences.* Ss considered are of the form

(1) John hit Bill, and then Peter hit him.
Su vb Obj Su vb Obj

S_1 S_2

The test pronoun him is in object position in the second half of the sentence, S_2. We test the children's ability to select the appropriate referent for him in Ss of form (1) when the pronoun is unstressed (normal sentence stress) and when it is contrastively stressed.

*This construction is discussed in Akmajian and Jackendoff, "Coreferentiality and stress", Linguistic Inquiry, 1, 1, Jan. 1970, 124-126.

In the unstressed version of (1), him refers to Bill. However, when him is contrastively stressed there is a shift of pronoun referent, and HIM refers to John. The effect of contrastive stress on the S_2 object pronoun him in this S is to signal this shift of pronoun referent from the S_1 object Bill (its referent under normal stress conditions) to the S_1 subject John.

If we consider a number of such Ss of the form

(2) Su - vb - obj, and Su - vb - obj

S_1 S_2

we find that unstressed pronouns in S_2 refer to the noun of the same function in S_1. That is, the structure of the two Ss is assumed to be parallel. A subject pronoun in S_2 refers to the S_1 subject, and an object pronoun in S_2 refers to the S_1 object.

(3) John hit Bill, and then he hit Peter.
J

S_1 subject = John
S_2 subject pronoun he refers to John.

(4) John hit Bill, and then Peter hit him.
B

S_1 object = Bill
S_2 object pronoun him refers to Bill

Notice, however, that this 'parallelism' obtains only when the pronoun is unstressed. Contrastive stress on the pronoun signals some other reference. In (5) and (6), HE refers to S_1 object, and HIM refers to S_1 subject, in contrast to parallel reference.

(5) John hit Bill, and then HE hit Peter.
HE = Bill B

(6) John hit Bill, and then Peter hit HIM.
HIM = John J

It is interesting also to consider the effect of contrastive stress when both subject and object in S_2 are pronominalized.

(7) John hit Bill, and then he kicked him.
J B

Parallel structure

(8) John hit Bill, and then HE hit HIM.
B J

complete reversal

(9) John hit Bill, and then HE hit him.
se B

HE = someone else
him = parallel structure

(10) John hit Bill, and then he hit HIM.
J se

HIM = someone else
he = parallel structure

Normal stress indicates parallel structure, as in (7); contrastive stress on both pronouns, (8), indicates shift of both referents: Bill hit John. Contrastive stress on subject only, (9), indicates shift of subject referent only; since Bill is object referent of unstressed him, no candidate for shifted subject referent exists in S_1; accordingly, HE is interpreted as referring outside the S: someone else hit Bill. Contrastive stress on object only, (10), indicates shift of object referent only; again, no candidate for shifted object referent exists in S_1, since John is subject referent of unstressed he; accordingly HIM is interpreted as referring outside the S.

In general, then, in Ss such as (2), parallel structure is indicated for unstressed pronouns in S_2, i.e., an unstressed pr in S_2 refers to the noun of the same function in S_1. A contrastively stressed pr in S_2 refers to some other noun.

The purpose of this experiment was to test the child's knowledge of these reference conditions in Ss of type (1):

John hit Bill, and then Peter hit him.

Can the child correctly choose Bill as referent of the unstressed pronoun, and John as referent of the stressed pronoun?

Three pairs of Ss were presented to the child:

12a. The horse pushed the man, and then the elephant came along and pushed 'im.
b. The cow pushed the man, and then the elephant came along and pushed HIM.

13a. The cow stood behind the man, and then the elephant came along and stood behind 'im.
b. The horse stood behind the man, and then the elephant came along and stood behind HIM.

14a. The cow jumped on top of the man, and then the elephant came along and jumped on top of 'im.
b. The horse jumped on top of the man, and then the elephant came along and jumped on top of HIM.

The first S of each pair (12a., 13a., 14a.,) was read with the pronoun unstressed. In the second S (12b., 13b., 14b.,) the pronoun was loudly stressed. The child's task was to act out the second part of each S by having the elephant perform the appropriate action. The critical judgment on the part of the child was the selection of pronoun referent.

For this experiment, the child and E sit at a table on which are placed figures of a man, a horse and a cow, some toy foods (eggs and a hot dog), and a small cork mat. The child holds a small toy elephant which he is to manipulate during the course of the experiment. E explains to the child that he is to make the elephant do a number of things, like eating, or standing in a certain place, or jumping:

I'll have somebody else, the horse or the cow, do something first, and then the elephant is going to come along and do something like it. Will you make the elephant do what he's supposed to do? I'll show you what I mean.

Two practice Ss follow, in which E performs the first part, and the child performs the second part with the elephant:

The horse ate the fried eggs (E performs), and then the elephant came along and ate the hot dog (C performs).

The cow jumped onto the mat, and then the elephant came along and jumped onto the mat.

E performs Part 1 of each S while reading it, and then takes hands off while reading the second part so that C can proceed to act it out.

The children readily understood what they were to do, and only a few needed some encouragement with the practice Ss, such as "go ahead, make him do it." This mild hesitation was cleared up during the practice Ss, so that all the children performed with ease on the test Ss.

Comments

The younger children enjoyed their participation in this experiment, and performed with a big smile, or with giggling and some rough-housing in the pushing and jumping Ss. The older children tended to be polite but bored, going through the motions in a rather perfunctory manner.

The only problem encountered was with some of the younger children who hurried to act out their half of the S before it had been read to the end. These children assumed parallel structure as soon as they heard 'and then the elephant came along and...', and immediately duplicated the predicate of S_1 using the elephant as subject, without waiting to hear the end of the S. Two such children (the very youngest in our study, both 5.9) could not be induced to wait for the end of the S, and their responses were rated invalid. Two others (*6.3 and *6.9) were able to correct an initial error which clearly was ascibable to premature decision (12a., and b. both interpreted with parallel structure), after they were encouraged to 'listen all the way to the end'. They interpreted the subsequent Ss correctly, and were scored correct.

Results

This construction enjoyed the highest rate of success of all constructions tested in this series of experiments. Twenty-nine children got it right, while only one child (*6.0), failed. Four others performed with partial success (*5.9, 8.6, 8.10, 10.0), and two were scored invalid. Fig. PREF 1 presents these results.

failure	partial success	success	
*6.0	*5.9	*5.10	7.10
	8.6	*5.11	*8.0
	8.10	6.1	*8.3
	10.0	*6.3	8.4
		6.8	8.6'
		*6.9	*8.11
		6.10	*8.11'
		7.1	9.4
		7.2	*9.5
		*7.2	*9.5'
		*7.3	*9.6
		7.4	9.8
		*7.6	*9.9
		*7.8	9.9
		*7.9	
n=1	n=4	n=29	

invalid
5.9
5.9'

Fig. 1. Children's Performance on Contrastive Stress and Pronoun Reference Test.

Scoring

The task in this experiment was to select a referent for the object pronoun *him* in 3 pairs Ss of the form:

NP_1 pushed NP_2, and then NP_3 pushed him.

In the first S of each pair *him* was unstressed and referred to NP_2, the object in the preceding clause.
In the second S of each pair *him* was contrastively stressed and referred to NP_1, the subject in the preceding clause.

+ success (29 children)

Success in this test means that the child correctly contrasted the referent of *him* in all S pairs, choosing NP_2 for unstressed *him*, and NP_1 for stressed *him*.

+- Partial success (4 children)

Partial success means that the child correctly contrasted the referent of him in only some of the S pairs, but nevertheless showed knowledge of the effect of contrastive stress. The 4 children in this category all responded alike. They interpreted the first S pair correctly, and thereafter selected N_1 as pronoun referent throughout. This response over-reacts, as it were, to the presence of contrastive stress once it has been introduced, and treats the final 4 Ss as if they all contained stressed pronouns.

-Failure (1 child)

Failure means that the child selected N_2 as pronoun referent in all 6 Ss. This response ignores the effect of contrastive stress, treating all the Ss uniformly, as if they contained unstressed pronouns.

The notion of partial success, and the motivation for distinguishing it from failure, should be clarified further. The normal interpretation of our unstressed test S assumes parallel structure between its two clauses, yielding N_2 (object) as referent of him (object). All children are expected to assign N_2 as pronoun referent when no stress is present, which in fact they do. (Some, perhaps many, assign it without even hearing the end of the S, as in our 2 invalid cases.) The interesting question is what the children then do when contrastive stress is introduced. The child who makes no distinction upon hearing contrastive stress and persists in assigning N_2 as pronoun referent, is the one to whom we ascribe failure. We conclude that this child simply does not interpret the stress as significant for pronoun reference, or at least gives no evidence of doing so. On the other hand, the child who interprets the stress correctly by shifting to N_1 as pronoun referent the first time it appears does show that he recognizes its contrastive function. The fact that he persists in N_1 selection from this point on would seem to be an artificial effect of the test situation: once his attention has been focussed in the pronoun, he over-attends to it and is misled. Since he does interpret the stress as significant -- too much so, in fact -- we ascribe to this child partial success.

Thus the two kinds of error lead us to different conclusions about the children's knowledge, and are scored differently. Too many N_2's (with no N_1's) means failure, while too many N_1's (after an N_2) is a form of success.

In summary, this construction was known by almost all the children in the study. Only one child gave evidence of not knowing it (and 2 could not be tested because of inattention). We conclude that this aspect of contrastive stress is well established in children by age 6.

We now move on to another aspect of contrastive stress which proved far more difficult for children of all ages in our study.

CONTRASTIVE STRESS: FOCUS OF NEGATION

Interview

Initial Setting Up

Place on the table in front of the child figures of a cowboy, a lady and a dog; a toy table and chair.

Interview

1. Explanation

Now, here's the dog standing on the table. I want you to move him around, make him do different things, the way I say. O.K.? Will you move him so that he's LYING on the table. O.K. Now move him so that he's standing on the chair. O.K. Now so far I've been telling you what he <u>is</u> doing, and you've been making him do it. From how on, I'm going to tell you what he <u>isn't</u> doing, you guess what he <u>is</u> doing, and make him do it. O.K.?

2. Test Sentences

(Start with dog standing on table, chair nearby.)

Now here's the dog standing on the table.
Move him so that he isn't STANDING on the table. What's he doing?
isn't standing ON the table. What's he doing?
isn't standing on the TABLE. What's he doing?

(Start with lady standing in front of cowboy, dog standing nearby.)

O.K., now the lady. Here she is standing in front of the cowboy.
Move her so that she isn't standing IN FRONT OF the cowboy.
What's she doing?
Move her so that she isn't standing in front of the COWBOY.
What's she doing?
Move her so that she isn't STANDING in front of the cowboy.
What's she doing?

Discussion

Test Construction:

The dog isn't STANDING on the table.
The dog isn't standing ON the table.
The dog isn't standing on the TABLE.

Structural Feature Tested: effect of contrastive stress on focus of S negation.

In this interview, the children's ability to focus sentence negation on a stressed item in the sentence is tested. If we consider the question of S negation in general, we observe that negation in a S is not, under conditions of normal stress, limited to a specific item or word in the S. It may refer to the S as a whole, to one or another of its individual items, or to several of these items simultaneously. Thus

The dog isn't standing on the table.

may mean simply "It is not the case that the dog is standing on the table" (general S negation). Or the negation may apply to one item:

The dog isn't standing on the table.
(It's the cat who's standing on the table.)
The dog isn't standing on the table.
(He's sitting on the table.)
The dog isn't standing on the table.
(He's standing under the table.)
The dog isn't standing on the table.
(He's standing on the chair.)

Or several items may be negated simultaneously:

The dog isn't standing on the table.
(He's lying on the chair.)
The dog isn't standing on the table.
(He's lying under the table.)
etc.

All of these and others, are legitimate interpretations of the S. As it stands, the S is non-specific as to focus of negation, and the negation may apply freely to any or several of its items.

However, when one of the items in the S is contrastively stressed, the stress functions to focus the negation on that particular item.* Under these conditions, the negation applies only to the stressed item, and not to the rest of the S.

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*This function of contrastive stress is discussed in Jackendoff, R., Some Rules of Semantic Interpretation for English, unpublished doctoral disseration, MIT.

For example, The dog isn't STANDING on the table (capitals indicate contrastive stress) indicates that the dog is on the table, but doing something other than standing on it. Similarly for

The dog isn't standing ON the table.
(He's standing under the table.)
The dog isn't standing on the TABLE.
(He's standing on something else.)

The negation is limited by the presence of contrastive stress to the stressed item and the stressed item alone.

The question investigated in this experiment is the child's ability to recognize this function of stress in a negative S, namely that it focuses the negation on the stressed item, and limits it to that item. Children who interpret the stress correctly according to this function will negate only the stressed item in a S, assigning a positive interpretation to the rest of the S. Children who do not control this aspect of stress function, or control it only partially, will negate other S items in place of, or in addition to, the stressed item.

The experiment was set up as follows. The children were read a series of test Ss and asked to rearrange a group of toys on the table to fit each S. Two test Ss were used; each was presented first in its positive form, and then its negative was read with three different stress configurations:

Test S1: The dog is standing on the table.

Reading 1: The dog isn't STANDING on the table.
Reading 2: The dog isn't standing ON the table.
Reading 3: The dog isn't standing on the TABLE.

Test S2: The lady is standing in front of the cowboy.

Reading 1: The lady isn't standing IN FRONT OF the cowboy.
Reading 2: The lady isn't standing in front of the COWBOY.
Reading 3: The lady isn't STANDING in front of the cowboy.

First there was a brief warm-up session in which the child arranged the toys on the table to fit a number of introductory Ss (see Interview). Then E explained to the child the need to guess what was happening when the S said only what was not happening.

Now so far I've been telling you what he <u>is</u> doing, and you've been making him do it. From now on, I'm going to tell you what he <u>isn't</u> doing, and you're going to have to figure out what he <u>is</u> doing. When I tell you what he <u>isn't</u> doing, you guess what he <u>is</u> doing, and make him do it. O.K.?

E then started the test Ss, placing the dog on the table, with chair nearby:

O.K., now here's the dog standing on the table. Would you move him so that he isn't STANDING on the table. Fix him so that he isn't STANDING on the table (child performs). O.K., what is he doing?

Let's have him stand on the table again. Now move him so that he isn't standing ON the table. Can you move him so that he isn't standing ON the table? Good. And what is he doing now?

Alright, now let's put him back, standing on the table again. Now, move him so that he isn't standing on the TABLE. Show me what he's doing if he isn't standing on the TABLE. O.K., what's he doing? Fine.

The same procedure was repeated for test S2, starting with a lady standing in front of a cowboy, with a dog nearby:

O.K., now the lady. Here she is standing in front of the cowboy. Could you move her so that she isn't standing IN FRONT OF the cowboy? Fix her so that she isn't standing IN FRONT OF the cowboy. O.K., what is she doing?

Now here she is standing in front of the cowboy again. This time would you move her so that she isn't standing in front of the COWBOY? O.K., what's she doing?

Alright, let's put her back in front of the cowboy again Now would you move her so that she isn't STANDING in front of the cowboy. Do something with her so that she isn't STANDING in front of the cowboy. O.K., what's she doing?

The Ss were repeated freely for the children who hesitated, always with exaggerated stress on the key item. Frequently all three readings of the S were repeated to provide the full benefit of the contrasts between readings. Occasionally a child's responses improved the second time around, and the children were scored according to their best set of responses.

Notice that the order of presentation of stressed items was varied in the two test Ss, although the structure of the two Ss is similar. In S1 stress was placed in successive readings on:

Reading 1: VERB standing
Reading 2: PREPOSITION on
Reading 3: PREP. OBJECT table

and in S2:

Reading 1: PREPOSITION in front of
Reading 2: PREP. OBJECT cowboy
Reading 3: VERB standing

This was done to clarify the effects of order of presentation, if any, on the children's performance. Some possible effects of this ordering were, in fact, noted and are discussed below.

Results

This construction had the highest rate of failure of all constructions tested in this study. Only two children (*8.3, 9.9) got it right, while 25 failed. The remaining 9 children performed with partial success.

Success	Failure		Partial Success	
*8.3	5.9	7.1	7.2	
9.9	*5.9	7.4	*7.2	
	5.9'	*7.6	*7.3	
		*7.8		
		*7.10		
	*5.10	*8.0	*7.9	
	*5.11	8.4 n=25	8.6'	
	6.0	8.6	9.4	
	6.1	8.10	9.6	n=9
n=2	*6.3	*8.11	*9.9	
	6.8	*8.11'	10.0	
	*6.9	*9.5		
	6.10	9.5'		
		9.8		

Fig.FN. Children's Overall Performance on Contrastive Stress and Focus of Negation Test

Before proceeding to the scoring and analysis of results, let me say that I believe this particular test to be a fairly inaccurate measure of the children's knowledge. I think that the children knew more than the test was able to elicit, in that the test was far too hard. The children who succeeded do know the construction, but among those who failed, I believe for a number of reasons that there are many who would succeed at a better-designed test. At the end of this section I discuss these reasons and suggest an improvement in experimental technique.

The experimental results of this test are nevertheless interesting for what they reveal about the S analyses carried out by the children. I will discuss them in some detail, asking the reader to bear in mind that the generally poor performance of the children may well reflect the difficulty of the test rather than a lack of linguistic competence.

Scoring

This test consisted of two test Ss, each presented in three different readings.

S1

The dog isn't STANDING on the table.
The dog isn't standing ON the table.
The dog isn't standing on the TABLE.

S2

The lady isn't standing IN FRONT OF the cowboy.
The lady isn't standing in front of the COWBOY.
The lady isn't STANDING in front of the cowboy.

A S was scored correct if all three of its readings were interpreted correctly. A reading was scored correct if the stressed item, and only the stressed item, was negated. The specific method of determining correctness was as follows.

Scoring each Individual Reading

A reading is correct if only the stressed item is negated. For example, for the reading The dog isn't STANDING on the table only STANDING is to be negated. The child who moves the dog so that he is lying (or jumping, or sitting) on the table is correct. The child who makes the dog lie on the chair is incorrect -- he has negated an unstressed item (table) along with

the stressed item. There is no need to recount the various possibilities for error, of which there are many. The criterion for correctness on a given reading is, as stated, that only the stressed item be negated.

The children described their actions after each reading, when they were asked "What is the dog doing now?", etc. (see Interview). There were no discrepancies between their verbal descriptions and their toy arrangements.

Scoring the Sentence

+ Correct: A correct score for a S means that the children interpreted all three readings of the S correctly, negating only the stressed item on each reading.

P Partial: A partial score for a S means that the children interpreted two out of three readings correctly, negating only the stressed item on these two readings.

- Incorrect: An incorrect score for a S means that the children interpreted one or no readings correctly.

Notice that a S is scored 'incorrect' with one correct reading as well as with no correct readings. The child gets no credit for only one correct reading for the following reason. In almost all cases, the child with only one correct reading in a S has assigned the same S interpretation to several of the readings. He errs by focusing negation on the same S item regardless of differently placed stress. Either he is entirely consistent and assigns the same interpretation to all three readings, (8 children), or, most often, he gives the same interpretation to 2 of the 3 readings, (a highly probable outcome). Thus, for example, the most common error in S1, reading 1 (The dog isn't STANDING on the table) was to negate table instead of STANDING. Seventeen children did this, and all 17 of them continued to negate table in the subsequent, differently stressed readings. This yielded wrong answers for readings 1 and 2, and a right answer for reading 3. A 'right' answer for reading 3 under such circumstances indicates little or nothing about knowledge of stress function. Since the same interpretation is assigned to differently stressed Ss, one can only assume that it is achieved independently of S stress. As is so common in linguistic testing (and elsewhere), it is the context of the right answer and not the answer itself which yields its significance. One correct reading in a S, then, is no better than zero. Two correct readings is partially correct, and three is fully correct.

The children's scores on the individual Ss are given in Fig. FN1.

	S_1	S_2
5.9	-	-
*5.9	-	-
5.9'	-	-
*5.10	-	-
*5.11	-	-
*6.0	P	-
6.1	-	P
*6.3	-	-
6.8	-	-
*6.9	-	-
6.10	-	-
7.1	P	-
7.2	P	P
*7.2	P	P
*7.3	P	+
7.4	P	-
*7.6	P	-
*7.8	-	-
*7.9	P	P
7.10	-	P
*8.0	-	-
*8.3	+	+
8.4	-	P
8.6	-	P
8.6'	P	P
8.10	-	P
*8.11	-	-
*8.11'	-	P
9.4	P	P
*9.5	-	P
*9.5'	-	-
*9.6	P	+
9.8	-	P
*9.9	P	P
9.9	+	+
10.0	P	P

Fig. FN1. Children's Scores on Focus of Negation Test of Contrastive Stress with [redacted] individual Ss:

S1: The dog isn't standing on the table.
S2: The lady isn't standing in front of the cowboy.

+ = Correct
P = Partially Correct
- = Incorrect

The children's performance on the test as a whole is shown in Fig. FN2. Only two children succeeded with both Ss, *8.3 and 9.9. Partial success on the test as a whole was achieved by 9 children, and 25 failed. Fig. FN2 presents the breakdown by age and performance.

Failure		Partial Success		Success
One S - One S P	Both Ss -	One S + One S P	Both Ss P	Both Ss +
*6.0 6.1 7.1 7.4 *7.6 7.10 8.4 8.6 8.10 *8.11' *9.5 9.8	5.9 *5.9 5.9' *5.10 *5.11 *6.3 6.8 *6.9 6.10 *7.8 *8.0 *8.11 *9.5'	*7.3 *9.6	7.2 *7.2 *7.9 8.6' 9.4 *9.9 10.0	*8.3 9.9
n=12	n=13	n=2	n=7	n=2

Fig. FN2. Children's Performance on Contrastive Stress and Focus of Negation Test with Two Sentences.

+ Correct
P Partially Correct
- Incorrect

The striking feature of this construction is its high rate of failure, with children of all ages in the lowest group (5.9-*9.5'). This may be attributable to the difficulty of the test, but nevertheless some interesting trends are discernible.

The children's performance tends to improve slightly with age, the ages increasing as we move from the lowest scoring group to the highest:

Failure 1: 5.9 - *9.5
Failure 2: *6.0 - 9.8
Partial Success 1: 7.2 - 10.0
Partial Success 2: *7.3 - *9.6
Success: *8.3 - 9.9

The youngest age in each group increases regularly: 5.9, *6.0, 7.2, *7.3, *8.3. The fact that the same is not true for the oldest in each group may simply indicate that our sample cut off at too young an age to reflect the increase.

A look at the distribution of correct scores on the individual S readings (and the nature of the errors) yields some interesting insights into the children's knowledge and perhaps reveals some linguistic implications as well.

First consider the two Ss individually. One very striking fact about the children's correct S interpretations is that they are distributed unevenly among the different readings of a S. In S_1, 24 children got Reading 3 correct (The dog isn't standing on the TABLE), whereas only 3 children got Reading 2 correct (The dog isn't standing ON the table). And S_2 shows the same unevenness: 32 children got Reading 1 right (The lady isn't standing IN FRONT OF the cowboy), and only 6 got Reading 2 right (The lady isn't standing in front of the COWBOY). The numbers of correct responses for each reading are given in the following table:

	Reading 1	Reading 2	Reading 3
S_1	18	3	24
S_2	32	6	19

Number of Children who Responded Correctly to Each S Reading

Why are there such large discrepancies between the successful readings and the unsuccessful ones? What is it that makes some readings so easy for the children and others so hard? Certainly we can only speculate about the answer to this question, but one possibility would be that each S may have a "natural" focus of negation, i.e., a particular item on which the negation tends to focus in the absence of stress, or even a hierarchy of such foci. If there is such a character to a sentence, a sort of priority of potential foci of negation, then it would help to explain these large differences in correct scores on the different readings. According to this assumption, the children would be most often right when the stress falls on

the most 'naturally' negated item, when these two factors in sentence negation operate to supplement each other. As the stress is applied to less and less 'likely' S items, the number of correct scores goes down accordingly. Following this assumption, the hierarchy of foci for S_1, from most likely to least likely item, would be TABLE(24), STANDING(18) and ON(3). For S_2 it would be IN FRONT OF(32), STANDING(19) and COWBOY(6).

Not just the number of correct scores, but also the particular errors made by the children would tend to contribute to this idea of 'natural' focus of negation, or hierarchy of such foci. When the children made mistakes, they erred in the direction of more likely, rather than less likely, items. The table below shows the errors made for the different readings.

	The dog isn't standing on the table.			The lady isn't standing in front of the cowboy.		
STRESSED ITEM	R_1 STANDING	R_2 ON	R_3 TABLE	R_1 IN FRONT OF	R_2 COWBOY	R_3 STANDING
Correct	18	3	24	32	6	19
Errors	Table n=17	Table n=25 standing n=7	Standing n=10	Standing n=3 Cowboy n=1	In fr of n=27 Standing n=1	In fr of n=12

Errors in Focus of Negation for Two Test Sentences

In S_1, the primary focus of negation is on TABLE (reading 3, 24 correct). The errors in Readings 1 and 2 are strongly in this direction, focusing on TABLE instead of the correct item. Seventeen children chose TABLE in Reading 1, and 25 in Reading 2. And the errors on Reading 3 all focus on STANDING, the next most commonly correct item. The children's errors as well as the incorrect scores would seem to support the notion of hierarchy.

The same holds true for S_2. IN FRONT OF is the most commonly correct reading (32 correct), and IN FRONT OF predominates as an error in the other two readings. STANDING comes next, both in number correct and in tendency of error.

All this is highly speculative. But whether or not there exists a hierarchy of potential foci of negation, it is clearly the case that some readings are easier for the children than others. It might be suspected that the particular order of presentation of the stressed items is a factor in ease of interpretation. This does not appear to play a significant role, however, since in S_1 the easiest reading was the last, and in S_2, the first. Order of presentation does appear to have an effect, however, on overall number correct. The children did best (at least in our small sample) when the easiest reading came first: cf. 32 right in S_2 (Reading 1), and only 24 right in S_1 (Reading 3). It may be easier to handle the easy interpretation when it is the first one you meet.

This brings us to a comparison of the two test Ss. Most children found S_2 easier to handle than S_1. In Fig. FN1 it will be noticed that 14 of the children performed unevenly on the two Ss, doing better on one than the other. Of these 14, 10 did better on S_2, and 4 did better on S_1.* It may be as just suggested that they were aided by a more facilitating order of presentation in S_2. Clearly a second possibility for improvement in S_2 may be simply that the children improved with practice, and understood the task better on the second try.

Earlier I stated that I think the test is too hard, and may not really reflect the children's abilities. The reasons are as follows. Interestingly enough, many of the children who made errors used contrastive stress in their answers to "What is he doing now?", and used it appropriately. I.e., their stress pattern matched their S interpretation as displayed in their toy manipulation. It was the S interpretation that was inappropriate, e.g., in response to "Move the dog so that he isn't STANDING on the table" one boy put the dog on the floor. In response to "And what is he doing now?" he said "Standing on the FLOOR". Although his responses were inappropriate to the negative cue S, they showed knowledge of a closely related function of contrastive stress in positive Ss. And this was true of many of the children. Either they used stress appropriately in their (wrong) answers, or discussion was able to bring out more knowledge than the test showed.

Of course, there were also children who, in discussion after the test Ss, gave evidence of really not recognizing

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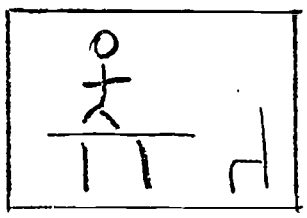
*The raw data, which contain fine discriminations obscured by the particular scoring system used, show 21 cases of this 'uneven' performance on the two Ss. Sixteen children did better on S_2, and 5 did better on S_1, lending additional support to the speculations under discussion.

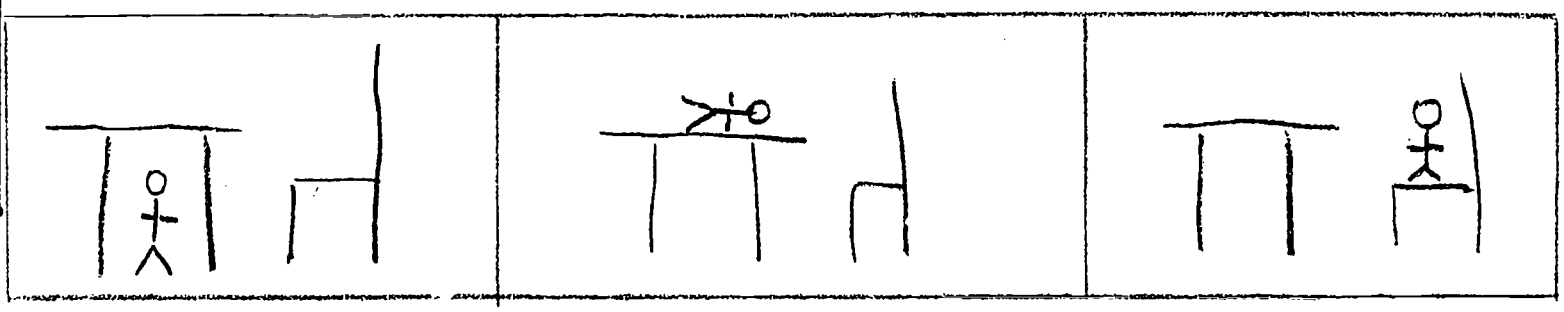
the function of the stress. For example, one boy who had negated the same item in all readings of each S was able to discuss his S interpretations with me in the following manner. I pointed out to him that he was doing the same thing for each reading although I was saying the Ss differently. Didn't he hear the difference? Oh sure, he said, you're saying table loud on one reading and standing loud on another. Didn't this affect the meaning of the S for him? No. He was perfectly able and willing to repeat the Ss for me as I uttered them, shifting the stress appropriately. But apparently this didn't relate to his S interpretation, which stayed the same.

The children who apparently knew more than the test elicited clearly showed the need for a better test. I think it is the abstract nature of the task set up by this test which makes it so difficult. Rather than being given specific alternatives to choose from in responding to the cue Ss, the children had to make up their own responses. It is always easier to choose among a set of alternatives: It is A, B, or C?, than to create your own answer: What is it? Since the "What is it?" approach didn't work well, I would substitute the "Is it A, B, or C?" approach before drawing conclusions about the difficulties of the construction. The test could be repeated using picture selection, for example, instead of toy manipulation. The child could be shown:

Here's a man standing on the table.



Now in the pictures below he isn't standing on the table anymore. In one of them he isn't STANDING on the table. In another he isn't standing on the TABLE and in another he isn't standing ON the table. Which is which? (repetition and discussion)



This kind of test defines the task much more narrowly and is more concrete. It ought to permit the children's performance to reflect their underlying competence more accurately.

In summary, this construction appears particularly difficult for the children, with only 2 children out of 36 succeeding at it. It is suggested that the nature of the test, rather than the children's lack of linguistic competence, is responsible for this poor performance. An improved experimental technique is suggested for further testing.

SUBORDINATE CLAUSE SUBJECT ASSIGNMENT

Interview

Initial Setting Up

Place on the table in front of the child figures of a cowboy and a horse.

Interview

Now I'm going to tell you some things about the cowboy and his horse. In every sentence that I give you, somebody did some eating. Either the cowboy ate something, or the horse ate something. I want you to show me who it was who did the eating in each sentence. O.K.?

The cowboy scolded the horse for eating the ice cream.
Who ate the ice cream?
The cowboy rode the horse before eating dinner.
The cowboy tricked the horse into eating a doughnut.
Before eating breakfast, the cowboy let the horse out.
The cowboy surprised the horse by eating an apple.
After eating dinner, the cowboy put the horse in his stall.
The cowboy brushed the horse after eating lunch.

Now, I want you to show me who didn't get to eat in these sentences.

The cowboy kept the horse from eating the bananas.
The cowboy warned the horse against eating hamburgers.
The cowboy rode the horse instead of eating breakfast.

O.K., now tell me. If the cowboy scolded the horse for running away, who ran away?

Interview Comments

This interview directly preceded the AND/ALTHOUGH interview, and led into it naturally. The Ss were somewhat similar in form, and the tasks that the children had to perform were related, so that no specific warm-up was needed for AND/ALTHOUGH.

Discussion

Test Construction:

The cowboy brushed the horse after eating dinner.

Structural Feature Tested:

Subject assignment to -ing verb in a variety of subordinate clauses

In this experiment, the children's ability to select a subject for the -ing verb in a number of different types of subordinate clauses is examined. In each S the main clause contains two nouns which serve as candidates for subordinate clause subject: the main clause subject, NP_1, and the main clause object, NP_2. In some of the Ss, NP_1 serves as subordinate clause subject; in others, NP_2 serves as subject.

GROUP I Ss: main clause subject (NP_1, underlined) serves as subordinate clause subject

Before eating breakfast, the cowboy let the horse out.
After eating dinner, the cowboy put the horse in his stall.
The cowboy rode the horse before eating dinner.
The cowboy brushed the horse after eating lunch.
The cowboy surprised the horse by eating an apple.
The cowboy rode the horse instead of eating breakfast.

GROUP II Ss: main clause object (NP_2, underlined) serves as subordinate clause subject

The cowboy scolded the horse for eating the ice cream.
The cowboy tricked the horse into eating a doughnut.
The cowboy kept the horse from eating the bananas.
The cowboy warned the horse against eating hamburgers.
The cowboy scolded the horse for running away. Who ran away?

The Ss were presented to the children in scrambled order, as listed in the Interview above.

Figures of a cowboy and a horse were placed on the table in front of the child. We explained to him that he was going to hear some Ss in which somebody did some eating, either the cowboy or the horse. It was his job to decide who it was who did the eating. We then read the test Ss, and the child pointed to the figure of his choice after each one.

It was expected that the Ss requiring the choice of NP_1 as subordinate clause subject would cause the children difficulty, for reasons described in earlier sections of this report. In fact the children had very little difficulty with the Ss, and only 3 children, all under 6, failed the NP_1 Ss. All children succeeded with the NP_2 Ss (one wrong out of 5 Ss was the highest error on the NP_2 Ss).

The children's performance on the NP_1 Ss is shown in Fig. SC1.

Failure	Partial Success	Success	
5.9	6.10	*5.9	*7.9
5.9'	*8.0	*5.10	7.10
*5.11	8.6	*6.0	*8.3
	8.10	6.1	8.4
	9.8	*6.3	8.6'
	10.0	6.8	*8.11
		*6.9	*8.11'
		7.1	9.4
		7.2	*9.5
		*7.2	*9.5'
		*7.3	*9.6
		7.4	*9.9
		*7.6	9.9
		*7.8	
n=3	n=6	n=27	

Fig. SC1. Children's Performance on Subordinate Clause Subject Assignment for 6 Test Ss.

Main clause subject is subordinate clause subject in all test Ss:

"The cowboy surprised the horse by eating an apple".

Failure: 4 Ss wrong
Partial Success: 2 Ss wrong
Success: ≤ 1 S wrong

It may be of some interest to consider the number of errors made on each S, and thus to get an idea of the relative difficulty of the Ss for the children. None of the Ss caused great difficulty; no more than 7 children failed any one S. Predictably, there were more errors in the Group I Ss, which require the choice of NP_1 as subject rather than NP_2. No difference is observed between Ss in which the subordinate clause action was performed: The cowboy brushed the horse after eating lunch, and those in which the action was not performed: The cowboy kept the horse from eating the bananas.

GROUP I Ss: NP_1 is subordinate clause subject

1. action in subordinate clause

Before eating breakfast, the cowboy let the horse out.
errors: 3 ages: 5.9, 5.9', 8.10

After eating dinner, the cowboy put the horse in his stall.
errors: 6 ages: 5.9, 5.9', *7.9, *8.0, 8.6, 10.0

The cowboy rode the horse before eating dinner.
errors: 4 ages: 5.9, *5.11, 6.10, 8.10

The cowboy brushed the horse after eating lunch.
errors: 7 ages: 5.9', *5.11, 6.1, 6.10, 7.1, 9.8, 10.0

The cowboy surprised the horse by eating an apple.
errors: 7 ages: 5.9, *5.9, 5.9', *5.11, *8.0, 8.6, 9.8

2. no action in subordinate clause

The cowboy rode the horse instead of eating breakfast.
errors: 5 ages: 5.9, *5.10, *5.11, *6.0, 7.4

GROUP II Ss: NP_2 is subordinate clause subject

1. action in subordinate clause

The cowboy scolded the horse for eating the ice cream.
errors: 0

The cowboy tricked the horse into eating a doughnut.
errors: 3 ages: *6.3, *6.9, *7.2

The cowboy scolded the horse for running away. Who ran away?
errors: 0

2. no action in subordinate clause

The cowboy kept the horse from eating the bananas.
errors: 2 *6.0, 6.8

The cowboy warned the horse against eating hamburgers.
errors: 3 ages: 6.8, *7.3, *9.9

In summary, the children had very little difficulty with the constructions in this experiment; only 3 children, all under 6, failed. As expected, the Ss which conform to the general pattern of English caused less difficulty than those which break this pattern.

OVERALL DEVELOPMENTAL SEQUENCE

It is of moderate interest to measure children's competence in dealing with individual grammatical constructions. We stand to gain information about patterns of acquisition characteristic of the different constructions, and if we are fortunate this information may shed some light on the nature of the constructions themselves. We also may be lucky enough to observe developmental sequences in the acquisition of certain structures. Working with a cross section of children rather than following individual children longitudinally, we depend on the pattern of successes and failures among related structures to yield information about order of acquisition.

Thus, for a given set of constructions, say our set of ask constructions, we find that individual children's successes and failures on the 3 test questions always assume the same pattern. Children who can do #3 can always do #2 and #1 and children who can do #2 can always do #1. There are no children who break this pattern, who can do #3, for example, and not #2 and #1; or who can do #2 without being able to do #1; or #1 and #3 without #2. On the other hand we do find children who can do #1 but not #2 or #3; and children who can do #1 and #2, but not #3. When our data are of this sort, when the structures can be arranged into a Guttman scale such that #3 presupposes #2 which in turn presupposes #1, then we have information about order of acquisition. Although we have not observed children over time as they progress from #1 to #2 to #3, we can nevertheless conclude that this is the order of acquisition and that we have an invariant developmental sequence.

That we can find such sequences when testing closely related structures, such as simple and complex ask, or simple and complex although, is not very surprising and only moderately rewarding. Sometimes, however, we find a stage we did not expect (such as ask Stages A1 and A2, for example, A ofS), and then things become more interesting because we have actually learned something about how individual syntactic rules are adjusted in children's grammatical systems as their linguistic competence increases and they approach the adult linguistic system. This is the heart of the matter for linguistic work of this sort, for in this way we find out what the rules look like, how they change, what steps the child has to go through, what progress actually looks like step by step, what is hard and what is easy.

Most interesting of all, of course, is when structures that are related to each other only loosely reveal this same orderly developmental sequence. This study had yielded 5 such structures:

1- easy to see (ETS)
2- promise (PR)
3- ask (Stage A4) (ASK)
4- and (AND)
4- although (complex) (ALTH)

These structures appear to be quite divergent, and one would not ordinarily group them together as candidates for a developmental sequence, nor predict a specific order of acquisition. Yet our results show that they are acquired in the order listed. The children's performance on these constructions divides them into 5 stages as shown in Fig. ODS1. (A more detailed chart showing individual children's ages and performance is given in Fig. ODS2, App. p.99.)

		easy to see	promise	ask	and	although
STAGE 1:	age 5.9-7.1 n=4	−	−	−	−	−
STAGE 2:	age 5.9-9.5 n=9	+	−	−	−	−
STAGE 3:	age 6.1-9.9 n=12	+	+	−	−	−
STAGE 4:	age 7.2-10. n=7	+	+	+	+	−
STAGE 5:	age* 7.6-9.9 n=4	+	+	+	+	+

Fig. ODS1. Developmental Stages in Children's Acquisition of 5 Test Structures.

+ Success
- Failure

Children who fail all five constructions are Stage 1; Stage 2 children pass ETS and fail the others; Stage 3 children pass ETS and PR and fail the others; Stage 4 children pass all but ALTH; Stage 5 children pass all five constructions.

The criteria for pass/fail are as described for the individual constructions in earlier sections of this report.

What is interesting in the data is the uniformity of the results. The amount of divergence from this sequence of acquisition is extrememly small, so small in fact that when the stages are considered as a Guttman scale, the coefficient of reproducibility is .96.

How do we account for this striking orderliness of the children's acquisition of these seemingly diverse structures? A closer look at the structures themselves reveals that they do have one feature in common. They all require the listener to

fill in a missing item in order to understand the S. The surface form of these Ss lacks either a noun phrase or a verb phrase which is crucial to its understanding, and the listener must know how to fill it in if he is to understand the S correctly. In each case it has to be filled in in a somewhat unlikely manner, which accounts for the difficulty. More technically, the listener must recreate the underlying form of the S given only its surface structure, and to do this he has to know, among other things, the rules govering deletions from deep to surface structure. If a child has not yet mastered the rules for these constructions, he will make mistakes in filling in the missing items, and end up with wrong S interpretations.

The general rule in English for filling in deletions such as in the above constructions is to choose the nearest preceding candidate item in the S. The child has learned this as a general principle of the language very early on. These five constructions, though very different from each other, all require that this principle be abandoned. They require instead the rather unusual principle: don't choose the nearest preceding candidate item in the S; look elsewhere. In a sense the child has to be freed from a deeply entrenched constraint in order to interpret each one of these constructions. He has to specifically learn in each of the above cases that his general principle does not apply. Evidently the relative complexities of these five structures are such that children tend to master them in the order listed, with surprisingly little variation.

Examples of the five structures follow, with the incorrect and correct interpretations given. Children who do not know a construction respond with the incorrect interpretation (near candidate, underlined); those who know the construction respond with the "other" candidate, (listed under 'correct interpretation').

1. ETS - The doll is easy to see.

   to be filled in: subject of see
   near candidate, incorrect: doll sees
   correct interpretation: somebody else sees the doll

2. PR - Bozo promises Donald to lie down.

   to be filled in: subject of lie down
   near candidate, incorrect: Donald lies down
   correct interpretation: Bozo lies down

3. ASK - The boy asks the girl what to paint.

   to be filled in: subject of paint
   near candidate, incorrect: girl paints
   correct interpretation: boy paints

4. AND - Mother scolded Gloria for answering the phone, and I would have done the same.

to be filled in: referent of done the same
near candidate, incorrect: I would have answered the phone
correct interpretation: I would have scolded Gloria

5. ALTH - Mother scolded Gloria for answering the phone, although I would have done the same.

to be filled in: referent of done the same
likely candidate (by analogy with preceding S, once learned), incorrect : I would have scolded Gloria
correct interpretation: I would have answered the phone

Several interesting observations may be noted in connection with the sequence of acquisition outlined here.

1. ETS, which was tested along with PR and ASK by the author in an earlier experiment (A of S), did not precede PR in that experiment as it does in this one. The reason for this may be faulty experimental technique in the first experiment (see ETS section above), which introduced extraneous cues and made the construction too difficult for the children. The current experiment, with improved technique, very likely reflects the children's competence more accurately.

2. PR precedes ASK Stage A4 in this experiment as in the A of S experiment, confirming the earlier results. Earlier stages in the acquisition of ask are not relevant to this overall developmental sequence.

3. AND and ASK Stage A4 appear to 'come in' together, if ASK Stage A4 is scored from the conversational portion of the interview rather than the picture test. (Stage 3 above contains several children who passed the ask picture test but not the conversation test. There might be reason to consider this a separate stage in the overall developmental sequence.) This would indicate that the child apparently learns AND at about the time he reaches ASK Stage A4 verbally; if this result is borne out by future experimentation, it suggests that the two constructions are of approximately the same degree of complexity.

4. A sixth construction, Focus of Negation, might perhaps be considered a part of this developmental sequence, given the data reported here. Only two children passed it, both of them in Stage 5 (*8.3, 9.9). Its inclusion would subdivide Stage 5

and create a Stage 6 containing these two children. I have not included it in the sequence primarily because there is no theoretical motivation to do so; it does not share a structural feature with the other constructions (there is no missing item to be filled in). Secondly, I think the particular experimental procedure used was too difficult, as discussed earlier, and therefore inaccurate as a measure of linguistic competence. For these two reasons I would not expect such a 'Stage 6' to be confirmed by subsequent testing. It is nevertheless interesting that the two children who passed Focus of Negation as it was tested are drawn from the top stage of our sequence.

In summary, five constructions tested in this study can be ordered in a Guttman scale, indicating a developmental sequence in children's acquisition of these structures. The five structures, though quite diverse, all require that the child apply a specific principle of sentence analysis that is uncommon in English. Apparently, the child's ability to apply this principle progresses in a regular fashion from simple structures to more complex ones as he matures.

III. READING STUDY

A second aspect of this study examined the children's reading background and experience. A variety of measures were used to obtain a general picture of each child's reading exposure, such as books read over a week's time, books that the child named in the course of a half-hour interview, parent reports of reading aloud, and so on. The attempt was to characterize each child's independent reading, to get a picture of how reading functions in his background and current life, by assessing how much and what is read to him, and how much and what he reads on his own. Both the amount read and the complexity of the material were taken into consideration.

The purpose of this examination of a child's independent reading was two-fold. On the one hand we wanted to develop a sensible means of assessing a child's reading exposure, or at least to explore a variety of possible approaches in order to judge their relative efficiency and effectiveness. Secondly, of course, we wanted to examine, in a preliminary way, the relation between exposure to written language and rate of linguistic development.

Our concern is not so much with the child's level of reading ability as it is with the reading that he actually engages in. That is, the mechanical skill that he has acquired is of interest for our purposes primarily in the way he puts it to use. The written language is potentially of a more complex nature than speech, both in vocabulary and syntax. The child who reads (or listens to) a variety of rich and complex materials benefits from a range of linguistic inputs that is unavailable to the non-literary child. From the point of view of exposure to the written language, it may matter little whether the child has the book read to him, as would be the case with the younger children in our study, or reads it himself, as do the older children.

In terms of contribution to linguistic development, we do not distinguish between hearing a book read aloud and reading it oneself. We assume that in both situations the contents, style and language usage of the book are made available to the child with approximately the same effectiveness.

DATA COLLECTION

The following information was gathered for each child:

I. Interviews

1-Half-hour interview with the child on reading activity and habits
2-Half-hour interview with the parent on child's reading
3-Huck's Taking Inventory of Children's Literary Background

II. Material prepared at home

4-Identification of books read from Master Book List of 400 children's books
5-Detailed record of one week's reading activity (books read and heard), recorded daily at home
6-List of books owned by the child (or representative sample)

I. Interviews

1-Child questionnaire (App. p.100-103)

This interview was held individually with each child, at school, with the interviewer taking notes as they went along. Three measures were counted from this interview to be utilized in data analysis:

a. Books named by the child in the course of the interview
   1- total number of books named
   2- weighted total, reflecting heavier contributions of books at higher readability levels (see Table WF1, App. p. 115 for weighting formulas used)
   3- mean level
   4- number of books named at top level
b. Number of yes answers to yes/no questions; e.g., Are you in the middle of a book now?
c. Numerical value calculated from questions with numerical answers, such as e.g., How often do you go the the public library?, How much time would you say you spend reading each day?

2-Parent questionnaire (App. p.104-106)

This interview was held in the home with the parent. Usually the mother met with the interviewer (in one case, the father). As with the Child Questionnaire, three measures were counted from this interview to be utilized in the data analysis:

a. Books named by the parent in the course of the interview
   Same measures as Child Questionnaire (a), 1-4.
b. Number of yes answers to yes/no questions; e.g., Are there books that you have reread to your child many times?
c. Numerical value calculated from questions with numerical answers, such as e.g., How much time do you spend reading to the child, daily or weekly? How many books does your child have out of the library this week?

3-Charlotte S. Huck, Taking Inventory of Children's Literary Background (App. p.107-113)

This multiple choice test of 60 familiar children's books and poems was administered orally to each child. The children followed along in their own attractively prepared booklet of the questions as the interviewer read each question and set of answers. The children were scored according to total number right.

II. Material prepared at home

4- Master Book List - 400 books (App. p.140-145)

A list of 400 children's books, a representative sample of books appropriate to children up to 10 years of age, was left in each home for the child to look over with the parent.* They were asked to check all books that the child was familiar with, either from reading or being read to, and to add on any books they wished. They were scored according to number and level of books checked, using the measures listed above under Child Questionnaire (a), 1-4.

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*Many parents asked to keep a copy of this list, expressing their desire and need for a guide in supplying their child with reading material.

5-Week's reading activity - tracked week

Each child (or parent) kept track of all reading and listening engaged in by the child over one week's time, writing down each day what he read or listened to and the number of pages. The parent was asked to indicate whether the reading activity recorded for the week was average for the child. In most cases it was.

The books and magazines named (some 150 in all) were analyzed for syntactic complexity and assigned a 'complexity score'. The formula employed to determine this complexity score (App. p. 114, Table CL1) was designed for this study and will be discussed below. Scores for the tracked week's reading and listening were assigned to each child on the basis of:

a. total number of words read and heard
b. weighted totals, reflecting heavier contributions of material at higher complexity levels (see Table WF1, App. p. 115 for weighting formula)
c. mean complexity level at which child read and heard
d. reading or hearing at top two complexity levels

6-List of books owned by the children

Each child (or parent) listed the books in the home belonging to the child. When the number was too large for convenient listing, some frac - tion of the total was listed with an indication to this effect.

Cooperation was poor on this task, and the return inadequate. Consequently, children were scored simply on the basis of 3 categories: whether his personal books functioned as an important factor in his reading, a moderate factor, or no factor. This figure was added into 2c. above. It is recommended for any follow-up study of this sort that parents be requested simply to count the number of books belonging to the child and provide this figure. This simplified task should bring in adequate results from all participants in the study; the information is reduced, but more reliable.

The purpose of having access to titles of the children's books in the home was to judge the range of written complexity easily available to the child. In fact, many of the children's books on the lists of books owned that we did receive were named by their owners elsewhere in the study: tracked week's reading, children's questionnaire, master book list. Thus to some extent the listing of books owned was redundant. Since it was so difficult to obtain, and since the information was provided elsewhere, we recommend a simple count of books owned for purposes of comparison among the children.

The interviews with the children and the home visits were carried out by the author and 5 graduate students in Reading at the Harvard Graduate School of Education. In the cases where the material prepared at home was not mailed back by the parent, we telephoned repeatedly and in some cases returned to the home to pick it up. We collected all but 4 of these home packages.

Complexity factor in reading during tracked week

A method of assessing linguistic complexity of written material for children was designed for this study, incorporating a number of readability factors and several syntactic and stylistic measures. The formula employed is presented in Table CL1, App. p.114. The attempt was to assess the potential contribution of a piece of writing to the reader's knowledge of the language, by considering such measures as number of subordinate clauses, depth of subordination, deletions from deep to surface structure, deviations in word order, unusual construction choice, figures of speech, etc.

Measures taken from the book as a whole include function of illustrations, amount of conversation, and role of description. Measures taken from a ten-sentence typical passage extracted from the book include average sentence length, number of subordinate clauses, depth of subordination, variation in sentence length for contrast, compound verbs, deletions, deviations in word order, in word choice and in construction choice, and figures of speech.

Most of the books listed by the children as read or heard during the tracked week were analyzed with this complexity formula.* Their complexity scores range from 1 1/2 (school reader - Tip and Mitten) to 56 1/2 (Borrowers Aloft). A representative sample of these books and their complexity scores is given in Table CF1.

A complete listing of these analyzed books is given in the Appendix: alphabetic listing, Table CF2, App. p.116, and listing by complexity score, Table CF3, App. p.119. Books read by the children that could not be located for analysis are omitted from these listings, but included in Table TW1, App. p.133-136, Books read and heard during tracked week. Sample analyses of several of these books showing application of the complexity formula, with the 10 sentence passages presented and analyzed, are given in App. p.114a-c.

READING DATA

This section presents the overall data gathered on books from our various sources, and charts of the children's scores on the several reading measures. Information pertaining to individual children can be found in the Profiles section of the Appendix, pp. .

Books

A detailed picture of what the children in the study are reading on their own can be derived from the following tables presented in the Appendix,

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Table CQ1: books named by the children on the Child Questionnaire, listed by grade of children (p. 122 - 125)

*We gratefully acknowledge the help of Mary Jane Yurchak, who tracked down and analyzed the great majority of these books.

BOOKS HEARD

compl score	author	title	child who named book: grade	age
51	Lewis, C.S.	The Lion, the Witch and the Wardrobe	3	8.6
41½	Milne, A.A.	When we were very young	1	6.8
37½	Dahl, R.	James and the Giant Peach	2	*8.0
33	Atwater, R&F	Mr. Popper's Penguins	1	7.2
27	Wilder, L.I.	Little House in the Big Woods	1	*6.9
23½	Cleary, B.	Henry and the Clubhouse	1	*6.9
22½	Garis, H.	Uncle Wiggily's Automobile	1	6.8
19½	Banner, A.	Around the World with Ant and Bee	1	6.10
12½	Piper, W.	The Little Engine that Could	1	*5.11
12	(MGM)	Tom and Jerry and the Toy Circus	K	5.9
4½	Seuss	Bartholomew and the Oobleck	K	6.1

BOOKS READ

score	author	title	grade	age
56½	Norton, M.	Borrowers Aloft	2	*8.3
51	Goudge, E.	The Little White Horse	2	*8.3
49	Jansson, T.	Tales from Moominvalley	3	*9.5
39	Wyss	Swiss Family Robinson	3	8.6
26½	Smith, N.	The Ghostly Trio	4	*9.5
22½	Potter, B.	The Tale of Peter Rabbit	2	*7.8
16	Beim, L&J	Two is a Team	1	6.10
12½	Rey, H.A.	Curious George	1	7.1
9½	Ousely & Russell	The Little White House	K	*5.11
7½	Kessler, L.	Mr. Pines' Mixed Up Signs	1	*6.3
1½	McKee,....	Tip and Mitten	K	*5.11

Table CF1. Sample of books read and heard during tracked week - complexity level ranking

Table CQ2: books named more than once on the Child Questionnaire, listed in order of frequency (p.126)
Table PQ1: books named by the parents on the Parent Questionnaire, listed by grade of children (p.127-130)
Table PQ2: books named more than once on the Parent Questionnaire, listed in order of frequency (p.131)
Table MBL1: most frequently checked books on the Master Book List, listed in order of frequency (p.132)
(The figures for the complete Master Book List, showing total number of children who checked each book, and a breakdown by grade of child, are given with the Master Book List itself, App. p.140-145)
Table TW1: books read and heard during tracked week, listed by grade of children (p.133-136)

These lists give some idea of what is popular at the moment, at least in Cambridge, Massachusetts, 1970. They are fairly self-explanatory. Seuss and fairy tales, together with Life Magazine, head the list as categories of child-named books, with Chitty Chitty Bang Bang the most frequently named single title. Comic books (Charlie Brown cartoons in particular) are high on the list. Parents and children both report the Bible and Bible stories with considerable frequency.

Seuss and Milne head the list of parent-named books, with the Bible and fairy tales next. Charlotte's Web and Stuart Little keep up tradition as the most frequently named single titles by the parents. Other books appearing on both parent and child listings are Winnie the Pooh, Cinderella, Mother Goose, and Wizard of Oz.

The Master Book List also provides a picture of what the children are reading and what kind of background in literature they have acquired. Here Make Way for Ducklings heads the list. 28 out of 31 respondents had read or listened to it. A glance at Table MBL1 easily reveals the frequently checked books - the list contains such favorites as Winnie the Pooh, Peter Pan, folk tales, Cat in the Hat, Alice in Wonderland, etc.

The books listed in the tracked week's reading and listening provide a glimpse into the current private reading life of the children. Some books are read in school, most are read at home. A number of books recur here, too: Mr. Popper's Penguins (3 children), Little Engine that Could (3 children), Charlie Brown comics (5 children), Life Magazine (3 children). Over half the children report comic books. Many report the Sunday comics. Newspaper reading appears to come in in 4th grade, but alas, among the boys only.

Children's Reading Scores

The scores for each child on the various reading measures are shown in Fig. RS1 a and b.

		1		2			3		4		5
	grade	Reading grade scores		Books - Child Q'naire			Books- Parent Q.		Master Book List		Huck Inv.
		voc	compr	# different books	total # *	wtd. total	total #	wtd. total	total #	wtd. total	
5.9	K	-	-	0	0	0	23	27	38	79	17
*5.9	K	-	-	7	8	21	12	34	-	-	17
5.9'	K	-	-	2	2	2	12	12	-	-	23
*5.10	K	-	-	3	3	5	10	18	49	108	27
*5.11	K	-	-	6	6	8	12	15	39	66	12
*6.0	1	-	-	5	5	8	15	21	10	16	19
6.1	K	-	-	4	7	16	26	35	55	123	31
*6.3	1	3.3	3.4	5	7	8	20	31	52	110	39
6.8	1	-	-	6	6	9	11	26	37	82	39
*6.9	1	3.2	2.8	9	9	14	20	33	55	120	29
6.10	1	3.2	3.0	3	3	4	21	38	96	174	29
7.1	1	2.6	2.3	5	5	9	18	37	166	342	37
7.2	1	3.6	3.7	4	4	13	10	35	63	139	30
*7.2	2	3.5	3.1	6	6	21	14	45	49	127	35
*7.3	2	3.5	3.7	12	19	32	15	33	57	126	35
7.4	2	1.7	1.6	2	2	3	2	2	-	-	37
*7.6	2	2.7	2.4	11	12	21	14	32	93	208	40
*7.8	2	5.0	4.9	14	25	47	37	94	105	238	40
*7.9	2	2.7	2.4	14	15	25	13	21	58	130	40
7.10	2	5.2	5.1	8	9	23	3	8	79	164	37
*8.0	2	4.1	4.0	9	9	31	29	88	247	505	40
*8.3	2	4.8	5.4	11	11	40	21	72	121	275	43
8.4	2	4.8	3.7	8	8	13	5	8	46	104	38
8.6	3	5.9	4.3	8	9	22	16	52	76	157	39
8.6'	3	7.1	7.0	8	8	25	28	74	132	291	45
8.10	3	4.7	3.6	10	12	25	11	27	84	176	34
*8.11	3	7.1+	7.0+	20	20	73	4	13	82	163	48
*8.11'	3	6.1	6.2	9	14	52	21	74	113	235	47
9.4	3	6.8	6.6	4	6	14	20	65	76	181	40
*9.5	4	7.0	6.0	5	8	23	11	31	76	170	35
*9.5'	3	3.9	3.6	14	16	55	11	34	162	345	48
*9.6	4	7.3	8.4	16	77	254	13	40	169	316	51
9.8	4	7.0	5.6	10	18	55	14	43	132	298	38
*9.9	4	5.4	3.0	10	18	51	12	29	-	-	38
9.9	4	5.6	6.3	9	14	39	27	80	77	173	41
10.0	4	6.7	6.5	4	10	32	14	47	86	186	38

Fig. RS1a. Individual reading scores, listed by age of child

\- no data

*Multiple credit given for books read more than once

	6		7	
	Reading-tracked week		Listening-tracked week	
	total # wds (100's)	wtd. total (100's)	total # wds (100's)	wtd. total (100's)
5.9	0	0	67	177
*5.9	-	-	-	-
5.9'	-	-	-	-
*5.10	0	0	273	1575
*5.11	25	26	234	2016
*6.0	0	0	0	0
6.1	0	0	175	625
*6.3	75	375	6	36
6.8	1	1	142	693
*6.9	59	256	228	1838
6.10	78	132	271	1367
7.1	483	3060	13	65
7.2	745	4442	63	665
*7.2	153	2286	92	876
*7.3	16	112	40	226
7.4	-	-	-	-
*7.6	51	273	256	1260
*7.8	1999	10827	25	425
*7.9	78	114	0	0
7.10	221	467	75	750
*8.0	99	594	85	634
*8.3	3220	28263	0	0
8.4	28	44	0	0
8.6	81	81	132	1404
8.6'	1144	6266	0	0
8.10	125	137	18	66
*8.11	620	5611	0	0
*8.11'	550	2140	15	180
9.4	276	578	70	728
*9.5	2201	15772	0	0
*9.5'	180	2180	108	1026
*9.6	1912	14094	80	900
9.8	382	3258	0	0
*9.9	-	-	-	-
9.9	1516	8340	100	1400
10.0	91	570	0	0

Fig. RS1b. Individual reading scores, listed by age of child

- no data

The wide variations in reading activity and also in ability to recall and recognize books read are of interest. On the Child Questionnaire (Fig. RS1a, col. 1), some children were able to name as many as 20 books, and others only 2 or 3. The scores on the Huck Inventory (col. 5) range from 12 to 51 correct out of 60. Familiarity with books on the Master Book List (col. 4) also varies widely. The number checked ranges from as few as 9 books to as many as 247. The correlations of these measures with each other and with the child 's linguistic stage will be presented in the next section.

Scores on reading and listening during the tracked week also show wide variations, and may warrant a closer look. If we look at Fig. RS1b, col. 7, Listening in tracked week, we see that the pre-readers range from the child who is not read to at all at home (*6.0), to the one who listens to 27,300 words a week (*5.10). *6.0's mother confirmed that no one has time to read to her at home. *5.10, by contrast, listed the following reading aloud during the tracked week (yielding our figure of 27,300 words), with an indication that this is the usual reading pattern.

day 1:from Mary Stewart, Tell Me a True Story: Jacob and the Angels
Jospeh the Dreamer
Joseph Sold by his Brothers
Joseph the Ruler

day 2:from Mary Stewart, Tell Me a True Story: Joseph Forgiving his Brothers
The Baby Boy Moses
Moses the Leader
The Red Sea

day 3:from Mary Stewart, Tell Me A True Story: Joshua the Soldier
from Thornton Burgess, The Adventures of Buster Bear:
Buster Brown Goes Fishing
Little Joe Otter gets even with Buster Bear

day 4:from Thornton Burgess, The Adventures of Buster Brown:
Buster Bear is Puzzled
Little Joe Otter Supplies Buster Bear with a Breakfast
Grandfather Frog's Common Sense
Little Joe Otter Takes Grandfather Frog's Advice

day 5:from Thornton Burgess, The Adventures of Buster Brown:
Farmer Brown's Boy has no Luck at all
Farmer Brown's Boy Feels his Hair Rise

day 6:from Thornton Burgess, The Adventures of Buster Brown:
Little Joe Otter has Great News to tell
Buster Bear Becomes a Hero

day 7:from Uncle Wiggily:Uncle Wiggily and the Rubber Plant
Uncle Wiggily and the Orange Tree
Uncle Wiggily and the Well

This little girl, the youngest of three children, has a grandmother living in an adjoining apartment who reads to her regularly every night.

The amount of reading aloud to the children decreases sharply, as would be expected, after first grade. In K and Grade 1 half the children listen to 14,000 wds/week or more (Fig. RS1b, col. 7). Once the children reach

the end of 2nd grade (our testing was done toward the end of the school year), no one is read to at this rate any longer. The children's own reading has taken over.* Even in grade 1 we see the children's own reading already beginning to replace their listening; those first graders who score higher in independent reading (col.6) have correspondingly lower totals in the listening column (col.7).

Among the older children, our heaviest reader (*8.3) read 322,000 words during the tracked week (col.7), reading Borrowers Aloft, Little White Horse, Find the Constellations, Myrtle Albertina's Secret, Helen Keller, Pinocchio, The Enormous Egg, a Charlie Brown comic book, Amelia Bedelia, and a number of stories. Quite a variety of levels for a second grader, ranging from our lowest complexity score to our highest. (This child, incidentally, is in Linguistic Stage 5, our top linguistic stage.)

It may be of interest to look at a breakdown by complexity level of the individual children's reading and listening during the tracked week. Fig. RS2 shows the distribution of reading and listening at the different complexity levels for each child, giving the number of words reported at each level. As mentioned above, complexity scores assigned to the children's books by the complexity formula on App. p. 114 ranged from 1½ to 56½. This range was divided into 17 levels for analysis purposes, as shown in Fig. RS2.

Characteristic of the heavy readers is reading at many different levels, low as well as high. *7.8, *8.3, 8.6 and *9.6, for example, have their reading well distributed among the various complexity levels. Only two children report reading at the top level of complexity: *8.3 and *8.11, Borrowers Aloft and The Hobbit. These two children are in our top linguistic stage, Stage 5.

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*The one exception to this observation is a second grade girl (*7.6), whose mother is still reading to her at the rate of 25,600 words/week. She is perhaps less of an exception than she seems, however. This is a child of IQ 142 (the highest in our study), in our top Linguistic Stage (Stage 5), who reads below grade level. Her reading has clearly not yet reached the point where it can replace the listening and meet her needs. Her mother reads her articles from the New York Times, the Boston Globe, Life Magazine, as well as a variety of books and even her school reader.

complex. scores of books	0-8½	9-11½	12-14½	15-17½	18-20½	21-23½	24-26½	27-29½	30-32½	33-35½	36-38½	39-41½	42-44½	45-47½	48-50½	51-53½	54-56½	grade	gr. sc. rdg. compr.
level	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		
5.9	6/	27/	19/	15/														K	-
*5.9	nd																	K	-
5.9'	nd																	K	-
*5.10					188/		45/	40/										K	-
*5.11	24/	1/	44/			6/		90/				94/						K	-
*6.0																		1	-
6.1	44/	28/	9/	28/		64/												K	-
*6.3	35/					6/	50/											1	3.4
6.8	1/1	51/	20/			25/		40/				5/						1	-
*6.9	22/	2/		5/		98/	30/30	40/				60/						1	2.8
6.10	48/	18/		12/	259/	12/												1	3.0
7.1	75/		11/	53/	4/13			340/										1	2.3
7.2			288/1	3/		248/				209/29		30/						1	3.7
*7.2							50/	39/		3/3					150/			2	3.1
*7.3					14/	26/	16/											2	3.7
7.4	nd																	2	1.6
*7.6	12/	18/	15/		228/		3/		24/7									2	2.4
*7.8		22/	99/1	91/		456/		3/		237/		191/					25/	2	4.9
*7.9	57/	6/	15/															2	2.4
7.10	86/	98/	8/	4/	15/		10/		75/									2	5.1
*8.0				20/		99/	32/			33/								2	4.0
*8.3	26/	145/	475/			793/	314/	87/		33/	812/						533/	2	5.4
8.4	24/				4/													2	3.7
8.6	81/								60/			72/						3	4.3
8.6'	36/	35/		259/	280/	14/	520/											3	7.0
8.10	123/10						2/8											3	3.6
*8.11	36/					224/	23/			237/							100/	3	7.0+
*8.11'	20/			530/								15/						3	6.2
9.4	54/	172/	20/	30/			32/					14/		24/				3	6.6
*9.5					562/		60/	792/	36/	209/								4	6.0
*9.5'						45/						160/63	20/					3	3.6
*9.6	241/	455/	17/	11/	60/	73/	90/	25/	50/			940/			30/			4	8.4
9.8	5/						70/		307/									4	5.6
*9.9	nd																	4	3.0
9.9					756/	760/								100/				4	6.3
10.0	16/	4/				41/				30/								4	6.5

Fig. RS2. One week's reading/listening

Chart shows number of words, expressed in 100's, read/heard at each of 17 complexity levels. Words read are to the left of the slash; words heard are to the right:

4/13 = 400 wds read / 1300 wds heard

IV. ADDITIONAL DATA

IQ

The Wechsler Preschool and Primary Scale of Intelligence (WPPSI) test was administered to children in the study who were under 6.2 years of age at the time of testing: 5.9, *5.9, 5.9', *5.10, *6.0, 6.1

The Wechsler Intelligence Scale for Children (WISC) test was administered to all children 6.5 and over at the time of testing: the remaining 30 children in the study.

IQs ranged from 98 to 142. See Table SAM1, App. p.91 for individual scores.

SES

A socio-economic score for each child was constructed as follows. Father's occupation, father's education and mother's education were converted to U.S. Bureau of Census equivalent scores (01-99)*, and a single SES measure (01-99) was constructed by taking the mean of these components.

SES ranged from 54 to 98. See Table SAM1, App. p.91 for individual scores.

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*Taken from U.S. Census of Population: 1960. Subject Reports. Socioeconomic Status. Final Report PC(2)-5C. US Government Printing Office, Washington, D.C., 1967.

V. RELATIONS BETWEEN LINGUISTIC STAGES AND OTHER MEASURES*

INTERRELATIONSHIPS AMONG THE READING MEASURES

Because of the great variety of reading measures constructed for this study and because of the small sample size (36), the customary technique for examining the inter-relationships among a set of measures - factor analysis - is clearly inappropriate. Instead, a simpler procedure was adopted. Three reading indexes were constructed which attempted to combine many of the most important reading measures.** These three indexes, and the Huck score plus the reading grade scores (vocabulary and comprehension) were all correlated with each of the individual reading measures.*** (Product-moment correlations were used and significance levels were based on the number of cases having scores on both variables being correlated, namely 36 for all correlations except those including one of the reading grade scores, where only 28 cases were available. Figures are presented in Table CORl, App. p. 137.)

The following conclusions were drawn. The individual correlations of books named on the Child Questionnaire, Master Book List, and Reading in the tracked week with the reading indexes and with the Huck score were almost invariably high: fewer than one in ten failed to go beyond the .05 level of significance. (The credibility of this finding is increased because, with only 36 cases, the observed correlation -- in order to be significant -- must not only depart from chance but must also show a substantial degree of association. In other words, with a small sample size, significance implies considerable strength of association.) The general level of correlation was so high that an attempt to differentiate between degrees of association for the various measures would be doubtful - particularly since the assumption of linearity implied by the product moment calculation is only an approximation. For books named on the Parent Questionnaire and Listening in the tracked week, the significance levels are generally lower. The parent-named book measures still correlate highly with the Huck score and with all but the regression based reading index. The week's listening measures fail to go beyond the .05 level of

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* I am very much indebted to Paul Smith for organizing and carrying out the statistical analyses contained in this report. This section of the report reflects his planning and work throughout in analysis of data and in its presentation. I am grateful to him for his willingness to undertake this aspect of the study, and for his extensive help. His advice on organization of the reading data was also extremely helpful.

**The three indexes were: a) Lickert scaling that equates the range of component measures; b) a mean standardized z-score that equates the individual means and standard deviations of the component measures; c) the best linear combination of the component measures for the prediction of the comprehension grade score in reading as determined by multiple regression.

***The formulae for the various kinds of correlations and for the significance tests can all be found in the technical manual for the standard computer program used to compute them: Nie, Norman, H., Bent, Dale H., and Hull, C. Hadlai, SPSS: Statistical Package for the Social Sciences, N.Y.: McGraw Hill, 1970

significance in more than half of their correlations with each of the indexes and with the Huck. The obvious conclusion is that -- in general -- the week's listening measures have a degree of independence from the otherwise close inter-relationships among the reading measures. The explanation for such autonomy is equally obvious: the mean level at which the child is read to is positively related to his SES ($r=.34$, $p=.02$) while the amount of words read to him is negatively related to his own reading vocabulary ($r=-.33$, $p=.05$). But reading vocabulary and SES are generally associated. For the other reading measures, where they 'pull together' to increase the reading scores -- or at least do not cancel out -- high reading scores are received by children who are high on both SES and reading vocabulary. But children who receive high scores on week's listening will -- on the contrary -- be those children with relatively high SES but relatively low reading vocabularies.

The relationship of the individual reading measures to reading grade scores (both vocabulary and comprehension) are quite a different matter. Their correlations with all measures taken from books named on the Child Questionnaire are uniformly beyond the .05 level of significance, Otherwise the number of significant correlations varies from less than half in the case of Listening in the tracked week to none in the case of parent-named books and Master Book List.

There is one final practical conclusion: if an inexpensive measure of the general level and extent of a child's own reading is desired, the Huck score clearly parallels all the far more expensive measures very closely. In fact, the Huck is at least as good an index of the other measures in its own right as any of the three specifically constructed indexes, and it is nearly uniformly superior to the reading grade scores.

RELATIONSHIP OF READING MEASURES TO LINGUISTIC STAGES

The correlations between the several reading measures and the linguistic stages were examined. (The results given are in terms of the Kendall rank correlations, although both Spearman rank correlations and Pearson product-moment correlations were also computed. The choice of the Kendall measures was determined by the large number of ties on the stages of the linguistic variable. No finding presented below would be reversed by the use of eithr of the other two correlation coefficients. Correlations are presented in Table COR2, App. p 138.)

All the measures of books named on the Child Questionnaire, Master Book List and Reading in the tracked week were significantly related to the linguistic stages at the .05 level or beyond. The reading grade scores, the Huck, and the reading indexes were similarly significantly associated with position on the linguistic sequence. Number of yes answers and numerical values from Child and Parent Questionnaires were <u>not</u> significantly related to the stages. The amount of listening in the tracked week was negatively (and significantly so) related to the child's stage.

The fact that the relationships were all so highly significant makes it pointless to attempt to assess the relative importance and the locus of relevance of the reading measures to the linguistic stages by means of the correlation coefficients alone. Little is lost from this fact, since

the comparisons of the averages at the 5 linguistic stages (see below) cover these issues and do so in a more graphic form. What the uniformly significant correlations do demonstrate, however, is valuable: namely, that the differences in mean values observed between the stages of the linguistic scale are patently not chance artifacts. Thus the correlations merely serve to ensure that the interpretations drawn from the examination of the averages by stages are valid.

RELATIONSHIP OF OTHER MEASURES TO LINGUISTIC STAGES

The (Kendall) rank order correlations of the linguistic stage with IQ, with the component tests, with age and with grade were all significant at the .001 level. Figures are presented in Table COR3, App. p. 139. The correlation of the linguistic stage with a measure of family SES was significant at a level beyond .02. When interpreting these results, it is worth noting two points. First, the IQ score and its components are age-corrected measures, and second, the original sample was selected in a fashion which reduced the correlation between age and reading grade score as much as possible. Thus it is quite tenable to conclude that neither the age nor the ability measures are merely surrogates for the other.

(vocab and comprehension)

The correlations of SES with age, grade and reading grade scores/were all non-significant (r's=.18, .13, .09 and .30 respectively), while the correlation of SES with IQ was significant at the .001 level (r=.49). SES was also significantly (.001) related to all the measures of books named on Child Questionnaire, Parent Questionnaire, and Master Book List. (these are all product-moment correlations.) Thus if the effect of SES upon linguistic stage placement was not direct, but by means of some third variable, the candidates are restricted to either general ability or the reading environment to which the child was exposed. The proper procedure for attributing the effects upon linguistic stage placement back to the candidate explanatory variables is -- for the rough levels of measurement we have attained here -- multiple discriminant analysis. An obvious next step in this line of research -- now that a stage sequence has been suggested -- is clearly to perform such an analysis on selected measures taken from a considerably larger sample.

The conclusions to be drawn from this section of the analysis are clear but very limited. The linguistic stage placements are behaving in a quite expectable manner, displaying large and credible correlations with all the likely predisposing variables which we would expect to relate to a developmental sequence: age, grade, reading grade scores, IQ, SES. We are thus probably measuring something that is both real and valid. (Valid in the sense that it behaves as the attribute of linguistic performance which we sought to measure ought to behave.) In the determination of the individual child's linguistic performance as indicated by his stage, it is quite likely that both ability (IQ) and age play an independent role. Finally, there is a clear SES component in the determination of a child's linguistic stage, but only further work can determine if that component is independent of or accounted for by IQ and the child's reading environment.

AVERAGE SCORES OF READING AND OTHER MEASURES AT EACH LINGUISTIC STAGE

This section presents the average scores of the children in each linguistic stage on a variety of reading and other measures. Averages were calculated at each linguistic stage for all reading measures described earlier, as well as for age, IQ, SES, grade, and reading grade scores. Those measures for which the children's average scores are relevant to linguistic stage are listed in Fig. AVG1.

Reading measures which serve to discriminate the whole range of linguistic stages are found at the top of Fig. AVG1. Huck's Inventory of Children's Literary Background (1), a check on children's knowledge of the content of 60 familiar books, stories and poems, works well. Perhaps this measure refines the notion of exposure to written materials in that it incorporates not just exposure, but also internalization and retention of what one has heard. The numerical scores from both Child and Parent Questionnaires work well also (2,3). These are calculations from answers to questions to the parent such as "How much time do you spend reading to the child each week, now or formerly?", "How often does he visit the public library?"; and, to the child: "How much TV do you watch a day?"* and "How many books do you have out of the library now?" In addition, several book count measures (4,5,6) from the Parent Questionnaire and Master Book List function for all linguistic stages. Each of these 3 book counts involves level as well as number of books. IQ (7,8,9) works well, the verbal portion perhaps tapping largely the same general abilities as our linguistic test.

Beyond this, we find different measures discriminating at the low stages and at the high stages (central and lower portions of Fig. AVG1). At the lower stages, age, grade and grade score in reading comprehension (10,11,12) all do well. Not for the highest stages, however. At the top stage, average age and reading comprehension score drop**; school grade remains the same. Of the reading measures, book count measures seem to do best at the lower stages, both from the Child Questionnaire (13,14,15) and the Master Book List (16,17). Here total numbers count (13,16) as well as level of books (14,15,17). Two individual questions from the Child Questionnaire also work well here: amount of time spent reading weekly (18), and the average number of public library books taken out each visit (19).

At the higher stages, reading in the tracked week becomes an important measure (20-23). The top linguistic stage stands out as the only one in which children engage in reading at the top complexity levels (22). Reading complex material and knowing more of the language seem to go hand in hand, whatever may be the interaction of cause and effect. These top linguistic stage children currently read the most by far (20,21), and at

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*Credit is given inversely to time spent watching TV.

** It should be noted that our top linguistic stage, which consists of 4 children altogether, contains one problem reader (*7.6), who reads below grade level. Excluding this child, the average score in reading comprehension rises from 5.5 in Stage 4 to 6.2 in Stage 5, yielding a steady rise throughout the linguistic stages. Stage 5 average grade and age without our problem reader also rise from Stage 4, but only by 2 months. Clearly the small size of our sample fails to overcome effects such as these.

	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Measures good at all stages					
1.Huck Inventory of Lit. Bkground	23	31	38	39	43
2.Numerical scores from Child Q.	37	50	55	56	59
3.Numerical scores from Parent Q.	45	55	58	61	64
4.wtd. total (1-5) bks named -Parent Q.	21	30	42	47	49
5.Mean level (1-5) bks named - Parent Q.	1.4	2.1	2.4	2.9	3.0
6.# bks checked at top level - MBL	2.3	3.9	4.9	5.0	6.3
7.IQ (WPPSI,WISC) full scale	105	118	123	129	138
8.IQ - verbal	105	119	122	129	141
9.IQ - performance	104	114	120	123	129
Measures good at low stages					
10.age	6.2	6.9	8.2	8.8	8.6
11.grade in school	1.3	2.1	3.5	3.8	3.8
12.grade score-reading comprehnsion	2.3	3.5	4.4	5.5	5.3
13.total # bks named - Child Q.	4.5	6.8	16.4	10.3	14.3
14.mean level (1-5) bks named-Child Q.	1.4	1.9	2.3	3.0	3.0
15.wtd mean level (1-23) bks -Child Q.	2.9	6.0	6.9	10.6	10.4
16.total # bks checked - MBL	56	70	86	95	93
17.wtd (1-5) total bks checked - MBL	109	149	181	209	205
18.time spent reading wkly (1-7 scale)	1.8	3.8	4.3	5.2	4.3
19.avg # publ libr bks out - Child Q.	.5	.8	1.9	1	2.3
Measures good at high stages					
20.total # wds read -tracked wk (100's)	127	85	527	490	1351
21.wtd total wds read - tr. wk (100's)	772	633	3289	2787	10622
22.# wds read at top compl. level,tr. wk	0	0	0	0	15800
23.mean level (1-17) wds read - tr wk	1.9	4.5	3.0	5.3	7.2
24.# bks named, mother's childhood - P. Q.	2.0	2.0	2.2	2.2	3.5
25.SES (01-99) Census Scale	62	86	81	90	96
26.# bks named at top level - Child Q.	0	.7	.4	1	1.3
Miscellaneous					
27.Total # wds heard -tracked wk (100's)	63	128	59	13	89
28.wtd total wds heard - tr wk (100's)	523	871	438	141	665
29.mean level (1-17) wds heard - tr wk	4.2	6.9	5.7	3.8	4.7
	n=4	n=9	n=13	n=6	n=4

Fig. AVG1. Average scores at each linguistic stage on a variety of reading and other measures

the highest mean complexity level as well (23). Also, interestingly enough, their mothers report the most books from their own childhood that they have read to the children over the years (24). The top two linguistic stages are characterized by higher socio-economic bracket (25). and one book count measure (26).

Reading aloud to the children fails to discriminate among linguistic stages in this analysis. Since hearing books read is a well-known contributor to linguistic development in very young children, perhaps the spread of ages in this study has masked the effect. The peak of reading aloud occurs in Linguistic Stage 2 (27-29), bottom of Fig. AVG1), dropping through Stages 3 and 4, and rising again in Stage 5. We assume that a better assessment of the role of reading aloud in linguistic development would result from a younger, more uniform age group.

In summary, the measures which discriminate the whole linguistic range of stages include IQ, memory of content of books read (Huck), book counts weighted by level, and questionnaire replies. A variety of book counts (number of books recalled and recognized) appear to discriminate best at the lower linguistic stages, and word counts (of reading during the tracked week) discriminate best at the higher stages. Reading complex materials quite strikingly characterizes the top linguistic stage.

MINI-COMPARISONS: Uniform age and IQ, different linguistic stages

A natural question, given the type of data collected here is: What factors differentiate children in different linguistic stages, who are of roughly the same age and IQ? If we control for age and IQ, do any of the various measures that we used serve to distinguish children in lower linguistic stages from those in higher stages?

The small number of children tested precludes giving a statistical answer to this question. At most we can compare individual children who meet the requirement of same age and IQ and different linguistic stage. The results are not uninteresting, however. We were able to select 3 such sets of children, one from among the youngest in the sample, one from the mid-age group, and one from the oldest. In each group we have 3 children of comparable age and IQ, who are nevertheless at different linguistic stages.

Such a procedure of 'mini-comparisons' clearly has its limitations, but we are able in each age group to note a number of factors that vary as does linguistic stage. The overall picture shows that at each age reading or hearing books read is a strong factor, with many different individual measures of reading exposure contributing to this trend. Interestingly enough, SES appears as a factor most strongly in the youngest group (5.9-6.1), where many of the reading measures vary directly with SES. It is hardly news that higher SES parents read to their young children more; what is interesting is that SES is less of a differentiating factor among the older children. In the middle and oldest group, the children share a relatively high SES. For these children (particularly the oldest group where SES varies least), it is their own activity, not SES differences, that varies with linguistic stage. This suggests the following speculation, which might be interesting to test further: Given a high SES,

once a child can read he's on his own. His linguistic progress at this age may well turn out to reflect what he does with his time.

The charts which follow (Mini-comparisons 1, 2, 3) present the individual differentiating measures in each mini-comparison. Only the significant measures are included at each age, although all questions were asked of all children.

Notice that 3 items appear in all 3 age groups: the number of books named by the child in the course of his interview (child and parent in the youngest group), the average number of books taken out on regular visits to the public library, and interestingly, the number of books that the mother cited from her own childhood that she has enjoyed reading to the child. This third item,though somewhat of a surprise at first, makes sense once its implications are considered. The mother who recalls certain books with pleasure from her own childhood may well transmit this enjoyment to her child very early on when she reads to him. We may speculate that this child learns to assign a special role to reading, for what his mother enjoys doing with him, he quite naturally comes to enjoy and recognize as a valued activity.

Mini-comparison 1. Showing measures that vary as linguistic stage in three young children of uniform age and IQ

ages 5.9 - 6.1
IQs 118 - 120

	Ling. stage 1	Ling. stage 2	Ling. stage 3
age of child	5.9	5.9	6.1
grade in school	K	K	K
IQ (WISC)	118	120	118
SES (Census Bureau scale 01-99)	63	89	93
father's occupation score (Census Bureau scale 01-99)	80	80	99
father's years of education	12	16	20
WISC comprehension subtest	13	14	18
books named on parent and child questionnaires, #x level (1-5)	14	40	111
books named on parent and child questionnaires, avg. level (1-5)	1	1	3
reading to child in experimental week, total # words read	0	6700	17,500
reading to child in experimental week, # words read x complexity factor	0	17,700	62,500
Reported on parent questionnaire;			
books named by parent, # x level (1-5)	12	40	62
numerical score on parent's questionnaire	27	37	60
number of people at home who read to child	1	2	2
amount of time child is read to per week at home	1/2 hr.	1/2 hr.	>2 hrs.
avg. level (1-5) of books cited by parent as reread to child many times	1	1	2
does child visit public library?	no	no	yes
avg. # public library books taken out each visit	-	-	3
subscriptions to children's magazines	0	0	1
years nursery school attendance	0	0	1
# books from mother's own childhood cited as read to child	0	2	1

Mini-comparison 2. Showing measures that vary as linguistic stage in three mid-age children of uniform age and IQ

ages 7.10 - 8.6'
IQs 136 - 138

	Ling. stage 2	Ling. stage 4	Ling. stage 5
age of child	7.10	8.6'	*8.3
grade in school	2	3	2
Reading grade score (school record)	voc: 5.2 compr: 5.1	voc: 7.1 compr: 7.0	voc: 4.8 compr: 5.4
IQ (WISC)	138	136	136
SES (Census Bureau scale 01-99)	81	93	91
father's occupation score (Census Bureau Scale 01-99)	68	94	92
child's reading in experimental week, total # words read	22,100	114,400	322,000
child's reading in experimental week, # words read x complexity factor	46,700	626,600	2,826,300
Reported on child's questionnaire:			
books named by child, # x level (1-5)	23	25	40
avg. # public library books taken out each visit	1	2	3
recent books read, number named	1	1	5
avg. level (1-5) of books cited as recently read	2	2	5
avg. time TV watched per day	>1 hr.	1 hr.	<1/2 hr.
Reported on parent questionnaire			
reads long books to child, (now or formerly), continued from day to day	no	yes	yes
avg. level (1-5) of long books named	-	3	4
rereads favorite books many times to child (now or formerly)	no	yes	yes
avg. level (1-5) favorite books reread	-	3	4
frequency of child's visits to public library	irreg.	biweekly	>weekly
avg. # public library books taken out each visit	1	2	4
years nursery school attendance	1	2	2
# books from mother's own childhood cited as read to child	0	2	7

Mini-comparison 3. Showing measures that vary as linguistic stage in three older children of uniform age and IQ

ages 9.4 - 10.0
IQs 129 - 136

	Ling. stage 3	Ling. stage 4	Ling. stage 5
age of child	9.4	10.0	9.9
grade in school	4	4	4
reading grade score (school record)	voc: 6.8 compr: 6.6	voc: 6.7 compr: 6.5	voc: 5.6 compr: 6.3
IQ (WISC)	135	129	136
SES (Census Bureau scale 01-99)	93	96	96
father's occupation score (Census Bureau scale 01-99	88	96	96
father's years education	16	16	20
Reported on child's questionnaire:			
books named by child, total #	6	10	14
books named by child, # x level (1-5)	14	32	39
books named by child, # x weighted level (1-23)	40	119	135
numerical score on child's questionnaire	50	56	69
avg. # public library books taken out each visit	-	-	6
# library books out now	0	0	4
# favorite books named	1	2	3
are you in the middle of a book now?	no	yes	yes
child named last book read	no	yes	yes
level (1-5) of last book read	-	2	3
do you ever read when you get home from school?	no	no	yes
avg. time spent reading	twice/ wk.	daily <1/2 hr.	daily >1/2 hr.
avg. # books read per week	-	2	3
Reported on parent questionnaire:			
avg. time child was read to when small	1 hr./ wk.	daily >15 min.	daily >15 min.
avg. time child spends reading now	1 hr./ wk.	15 min./ day	>15 min./ day
# books named by parent as read recently by child	1	1	7
avg. level (1-5) of books recently read by child	2	2	3
# books from mother's own childhood cited as read to child	2	2	3

VI. SUMMARY

36 children between the ages of 6 and 10 were tested for knowledge of 8 complex syntactic structures. 5 of these structures proved to be acquired in sequence, revealing 5 developmental stages in acquisition of syntax. The range of ages at each linguistic stage is considerable.

The children's exposure to the written language as a source of complex language inputs was examined for its relation to rate of linguistic development. Our results show a strong correlation between the various reading-exposure measures and language development.

GLOSSARY

A of S: The Acquisition of Syntax in Children from 5 to 10, Carol Chomsky, Cambridge: MJT Press, 1969.

complexity level (1-17) of books:
17-step breakdown of complexity scores of books read and heard by children during the tracked week. The analysis of children's reading during this week was carried out according to the number of words read and heard at each of these 17 complexity levels.

complexity level	complexity scores
1	0 - 8 1/2
2	9 -11 1/2
3	12 -14 1/2
4	15 -17 1/2
5	18 -20 1/2
.	.
.	.
.	.
17	54 -56 1/2

complexity score of books:
score of 1 - 56 1/2 indicating syntactic complexity of a book, derived using the complexity formula in Table CL1, App. p.114. Books read and heard by the children during the tracked week were analyzed with this formula and assigned a complexity score.

Huck Inventory:
Taking Inventory of Children's Literary Background, Charlotte S. Huck, Scott Foresman, 1966. Test of children's acquaintance with the literature of early childhood. (App. 107-113)

IQ:
Wechsler Intelligence Scale for Children (WISC) - children 6.5 and over at time of testing
Wechsler Preschool and Primary Scale of Intelligence (WPPSI) - children 6.2 and under at time of testing

Linguistic stage:
Linguistic stages 1-5 indicate the position of a child in the sequence of acquisition of 5 test structures in this study. See Fig. ODS1, p.61.

Master Book List:
List of 400 children's books, on which child and parent checked those books that the child had either read or listened to. This list was left in the home to be filled out over several week's time.

(Readability) level (1-5) of books:

5 levels into which books on Child Questionnaire, Parent Questionnaire and Master Book List were classified, according to grade level.

level in this study	grade level
1	---- 2.4
2	2.5 - 3.5 (also level 1 factuals)
3	3.6 - 4.6+ " " 2 ")
4	5.0 - 6.6+
5	7.0 ----

Grade levels of books were assigned according to E.C.R.I.'s Library Resources catalog of children's books, which utilizes the Spache readability formula for Grades 1-3, and Dale-Chall from Grade 4 up.

Reading grade scores - from school record card:

tests administered:

Grade 1 - Gates McGinitie Primary A, Form 2
" 2 - " " " B, " "
" 3 - " " " C, " "
" 4 - Stanford Achievement Test, Intermediate I

SES:

Father's occupation, father's years of education and mother's years of education were converted to US Bureau of Census equivalent scores (01-99), and a single SES measure was constructed by taking the mean of these components.

tracked week:

week in which children, with parents' help, kept daily records of everyting they read or listened to read aloud

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APPENDIX CONTENTS

APPENDIX

	grade	SES (01-99)	IQ	Reading grade scores vocab	compreh
5.9	K	89	120	-	-
*5.9	K	98	129	-	-
5.9'	K	63	118	-	-
*5.10	K	55	110	-	-
*5.11	K	39	102	-	-
*6.0	1	54	98	-	-
6.1	K	93	118	-	-
*6.3	1	79	112	3.3	3.4
6.8	1	94	121	-	-
*6.9	1	94	120	3.2	2.8
6.10	1	95	113	3.2	3.0
7.1	1	93	101	2.6	2.3
7.2	1	94	133	3.6	3.7
*7.2	2	98	117	3.5	3.1
*7.3	2	80	121	3.5	3.7
7.4	2	60	123	1.7	1.6
*7.6	2	98	142	2.7	2.4
*7.8	2	97	131	5.0	4.9
*7.9	2	78	117	2.7	2.4
7.10	2	81	138	5.2	5.1
*8.0	2	97	118	4.1	4.0
*8.3	2	91	136	4.8	5.4
8.4	2	74	128	4.8	3.7
8.6	3	90	123	5.9	4.3
8.6'	3	93	136	7.1	7.0
8.10	3	74	123	4.7	3.6
*8.11	3	98	141	7.1+	7.0 +
*8.11'	3	92	121	6.1	6.2
9.4	3	93	135	6.8	6.6
*9.5	4	52	125	7.0	6.0
*9.5'	3	83	107	3.9	3.6
*9.6	4	98	133	7.3	8.4
9.8	4	92	124	7.0	5.6
*9.9	4	50	117	5.4	3.0
9.9	4	96	136	5.6	6.3
10.0	4	96	129	6.7	6.5

TABLE SAM1.

SAMPLE OF CHILDREN TESTED, Listed by age at time of Linguistic Interview

5.9 indicates 5 years, 9 months
An asterisk preceding age (*5.9) is used to indicate girls

LINGUISTIC INTERVIEW

OPENING SESSION - TWO CHILDREN PRESENT

ASK/TELL

Props: pencils, doll, book, box of food, crayons, tray, Pluto

Tell me your name. _____
Tell me your age. _____
I'll tell you what you're going to do here. We're going to play some games with the things on the table. (PICK UP DONALD DUCK) For example, you'll make him do some things. Can you tell me who he is? And you'll play with this doll, too. Later you'll feed her. But first, I'd like you to ask X some things, like

Ask X what time it is.
Ask X his last name.
Ask X the color of the doll's dress.
OK, now tell X something. Tell X how many pencils there are here.
And ask X what color this crayon is.
Ask X who this is. (INDICATE BOZO)
And tell X what color this book is.

Now will you tell X to stand up.
Ask X to walk across the room.
Ask X to come back and sit down.

Ask X what's in this box. (POUR FOOD ONTO TRAY)

(Proceed to A for child who failed so far.)
(Proceed to B for child who succeeded so far.)

A (FOR CHILD WHO FAILED TO DISTINGUISH ASK/TELL IN SIMPLE CASES)
Now the doll is hungry, and I'd like you two to feed her. Listen and I'll tell you how to do it.
S, will you first feed her the tomato.
Alright, S, now will you ask X what to feed her.
(to X) X, tell S what to feed her.
Ask X what to feed her.
Ask X what you should feed her now.

(SEND X BACK TO CLASS)
(PROCEED TO ASK/TELL PICTURES)

B (FOR CHILD WHO DISTINGUISHED ASK/TELL IN SIMPLE CASES)
You did that very nicely, keeping straight whether you're supposed to ask or tell. Now I want you to do some more asking and telling, connected with feeding the doll. She's hungry and you're going to feed her this food. Sometimes X will feed her, too. Listen and I'll tell you what to do.
S, first will you feed her the tomato. (OMIT HALF THE TIME)
Alright, S, now will you ask X what to feed her.

Tell X what to feed her. etc.

.
.
.
.
.

Ask X what you should feed her now.

Ask X what food to put back in the box.
Ask X what to put back next.
X, ask S what to put back. etc.

Now, ask X to stand up.
And ask X to go back to class.

DO PICTURE IDENTIFICATIONS- next page

EASY TO SEE

Props: doll with eyes that close and open

Place on the table in front of the child the doll, lying down with eyes closed.

IS THIS DOLL EASY TO SEE OR HARD TO SEE?
WHY?
WOULD YOU MAKE HER EASY/HARD TO SEE. (Choice of EASY/HARD determined by child's response to first question)

STRESSED AND UNSTRESSED HIM

Props: man, horse, cow, eggs, hot dog, cork mat

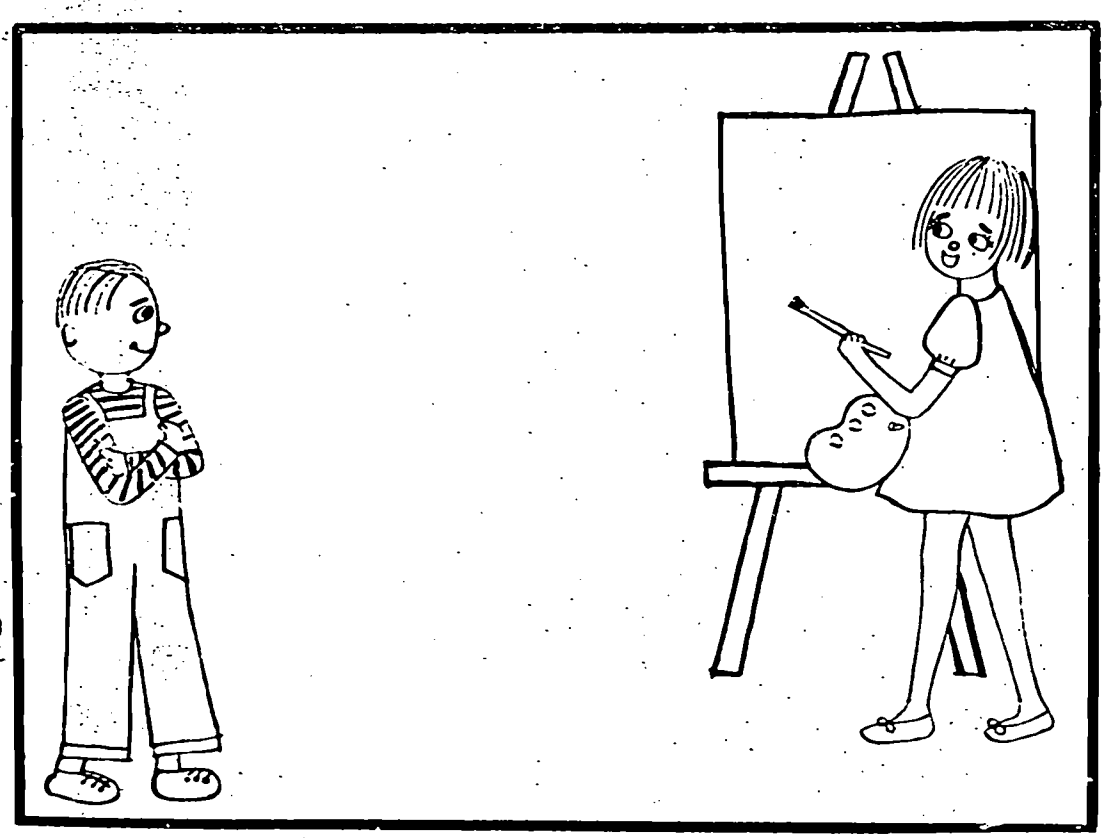
Give child the elephant.

I want you to have the elephant do some things, like eating, or standing in a certain place. I'll have somebody else, (horse or cow) do something first, and then the elephant's going to come along and do something like it. Will you make the elephant do what he's supposed to do. I'll show you what I mean.
Like,

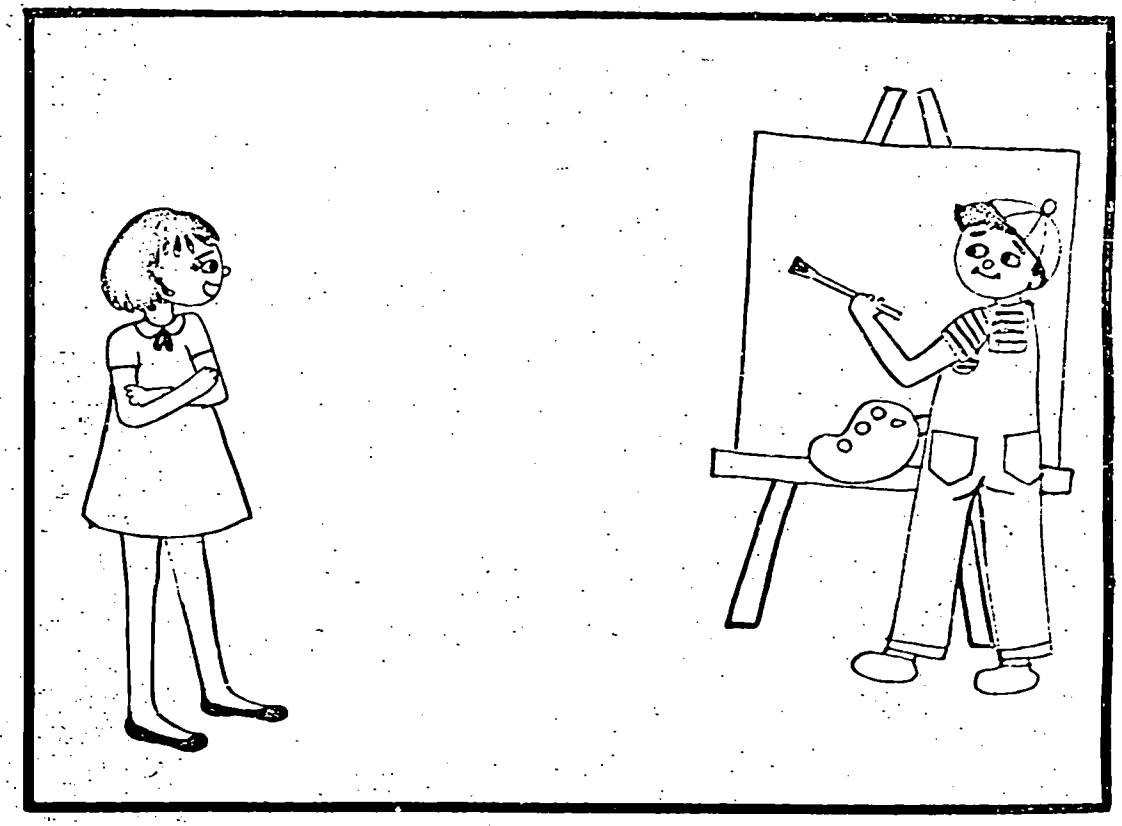
The horse ate the fried eggs, and then the elephant came along and ate the hot dog.
The cow jumped onto the mat, and then the elephant came along and jumped onto the mat.

The horse pushed the man, and then the elephant came along and pushed 'im.

horse man



1a. Correct interpretation

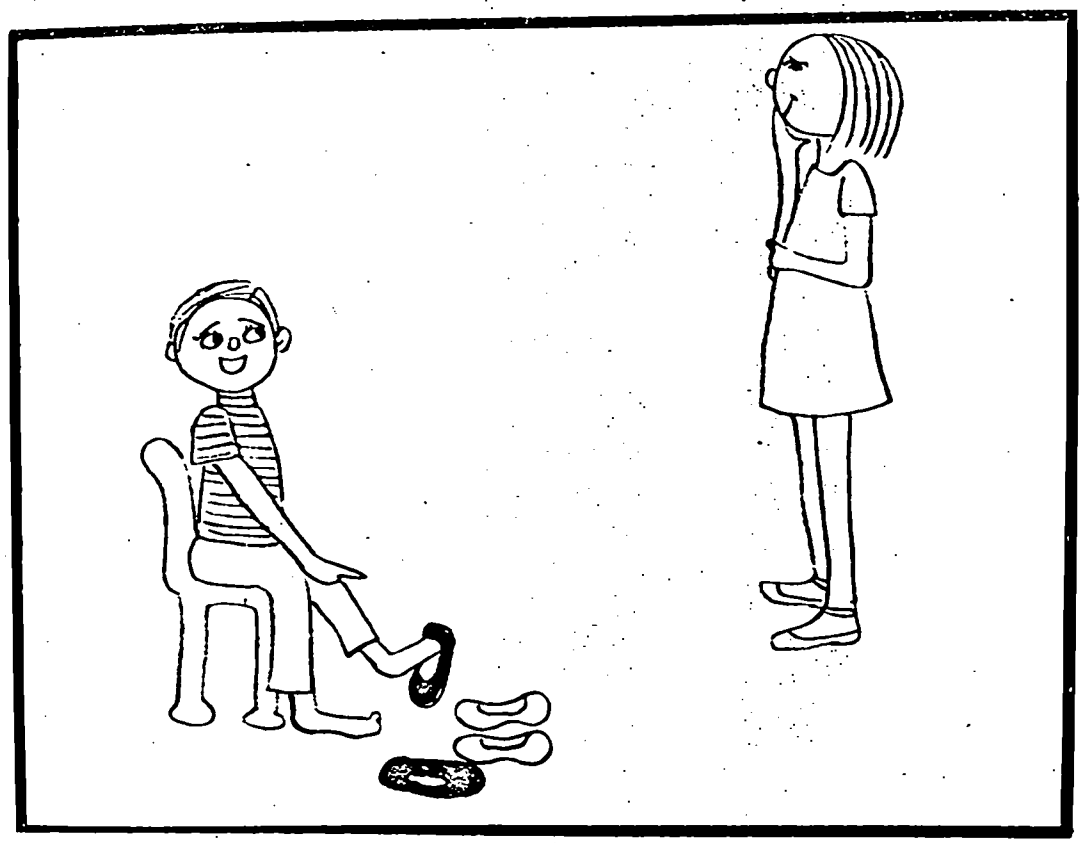


1b. Incorrect interpretation

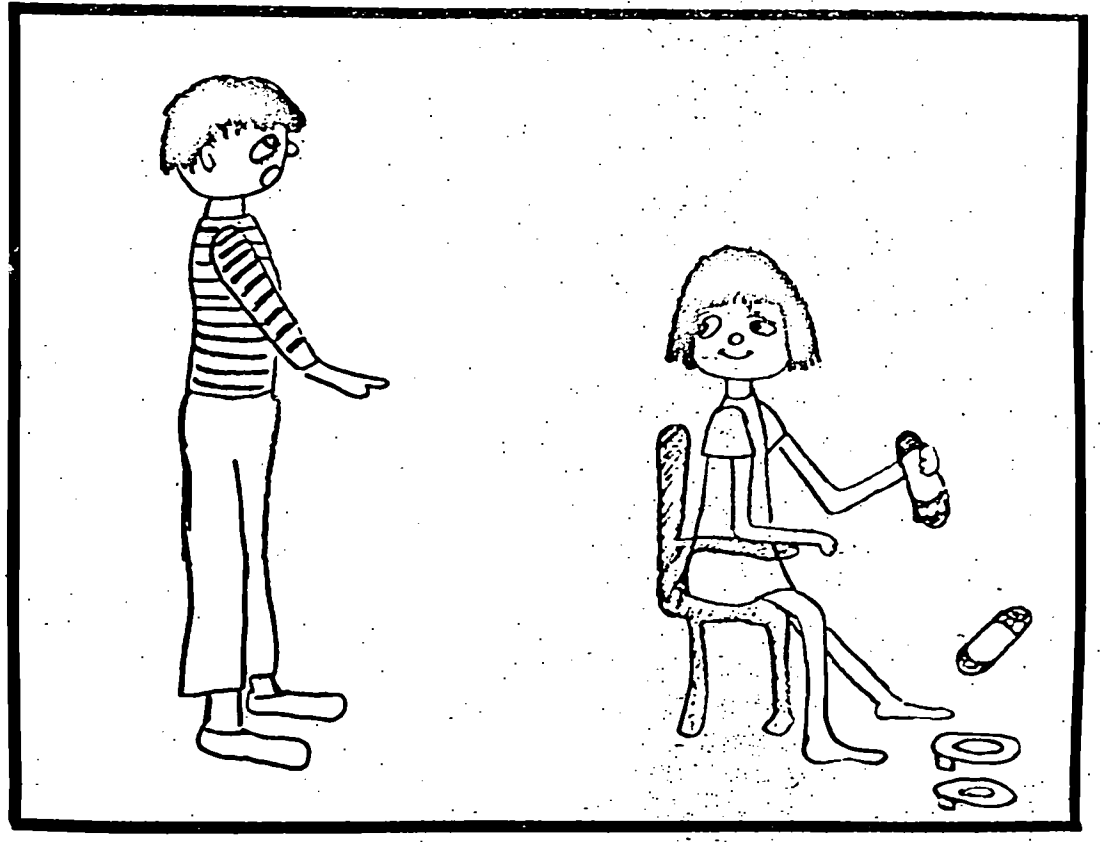
Test pictures 1a. and 1b.
Test sentence: The girl asks the boy what to paint.

Subject is shown both pictures simultaneously and asked

1. Which picture shows the girl asking the boy what to paint?
2. What is she saying to him?



2a. Correct interpretation



2b. Incorrect interpretation

Test pictures 2a. and 2b.
Test sentence: The boy asks the girl which shoes to wear.

subject is shown both pictures simultaneously and asked

1. Which picture shows the boy asking the girl which shoes to wear?
2. What is he saying to her?

The cow pushed the man, and then the elephant came along and pushed HIM.

cow man

The cow stood behind the man, and then the elephant came along and stood behind 'im.

cow man

The horse stood behind the man, and then the elephant came along and stood behind HIM.

horse man

The cow jumped on top of the man, and then the elephant came along and jumped on top of 'im.

cow man

The horse jumped on top of the man, and then the elephant came along and jumped on top of HIM.

horse man

PROMISE

Place on a table: Donald Duck
Bozo
book

Interview

Can you tell me what you would say to your friend if you promise him that you'll call him up this afternoon? How would you say that to him? You want to promise him that you'll call him up this afternoon. What would you say to him?

Can you tell me who this is? (indicate Donald Duck)
And this? (indicate Bozo)
Now, I want you to make them do some things, and I'll tell you what. OK?

HAVE CHILD DO THESE CORRECTLY:
Bozo wants to do a somersault. Make him do it.
Bozo wants Donald to do a somersault. Make him do it.
Donald decides to stand on the book. Make him do it.
Donald says he's going to lie down. Have him do it.

TEST SENTENCES:

1. Bozo promises Donald to stand on the book. Make him do it. B D
2. Donald promises Bozo to hop up and down. Make him hop. B D
3. Donald promises Bozo to lie down. Have him lie down. B D
4. Bozo promises Donald to do a somersault. Make him do it. B D
5. Donald promises Bozo to stand on the book. Make him do it. B D

ALTHOUGH - SENTENCE COMPLETION

I want you to finish some Ss for me. I'll give you the first half and you give me the second half. OK. Just finish the Ss any way that makes sense. It doesn't have to be true.

1. Although my favorite TV program was on, I.....
2. I stayed up late last night, although.....
3. Although it rained yesterday, I.....
4. I wore a heavy jacket, although.....
5. Although my sister was sick, she.....

FOCUS OF NEGATION

Props: cowboy, chair, lady, table, dog

Now, here's the dog standing on the table. I want you to move him around, make him do different things, the way I say. OK. Will you move him so that he's LYING on the table.
OK. Move him so that he's standing on the chair.

OK. Now, I want you to move him so that he isn't doing something. Figure out what he is doing when I tell you what he isn't doing.
Now here's the dog standing on the table.
Move him so that he isn't STANDING on the table. What's he doing?
isn't standing ON the table "
isn't standing on the TABLE. "

OK. Now the lady. Here she is standing in front of the cowboy.

Move her so that she isn't standing IN FRONT OF the cowboy.
isn't standing in front of the COWBOY.
isn't STANDING in front of the cowboy.

COMPLEMENT SUBJECT ASSIGNMENT

Props: cowboy and horse

Now I'm going to tell you some things about the cowboy and his horse. In every sentence that I give you, somebody did some eating. Either the cowboy ate something, or the horse ate something. I want you to show me who it was who did the eating in each sentence. OK?

1. The cowboy scolded the horse for eating the ice cream. Who ate the ice cream? C H
2. The cowboy rode the horse before eating dinner. C H
3. The c tricked the h into eating a doughnut C H
4. Before eating breakfast, the c let the h out. C H

5. The c surprised the h by eating an apple.	C	H
6. After eating dinner, the c put the h in his stall.	C	H
7. The cowboy brushed the horse after eating lunch.	C	H
Now, I want you to show me who didn't get to eat in these Ss.		
8. The c kept the h from eating the bananas.	C	H
9. The c warned the h against eating hamburgers.	C	H
10. The c rode the h instead of eating breakfast.	C	H

AND/ALTHOUGH

OK. Now tell me. If the c scolded the h for running away, who ran away?	C	H
Now could you do a real long one? Tell me what it is that I would have done in the next S. The S says that I would have done something, and I want you to tell me what the S says I would have done.		
1. The c scolded the h for running away, and I would have done the same. What would I have done?	SC	RA
2. The c scolded the h for running away, although I would have done the same. What would I have done?	SC	RA
3. Mother scolded Seymour/Gloria for answering the phone, and I would have done the same. What would I have done?	SC	ANS
4. Mother scolded Seymour/Gloria for answering the phone, although I would have done the same. What would I have done?	SC	ANS

		easy to see	promise	ask	and	although
STAGE 1 n=4	5.9'	-	-	-	-	-
	*5.11	-	-	-	-	-
	*6.0	-	-	-	-	-
	7.1	-	-	-	-	-
STAGE 2 n=9	5.9	+	-	-	-	-
	*5.9	+	-	-	-	-
	*5.10	+	-	-	-	-
	*6.3	+	-	-	+	-
	*6.9	+	-	-	-	-
	6.10	-	+	-	-	-
	*7.2	+	-	-	-	-
	7.10	+	-	-	-	-
	*9.5'	+	-	-	+	-
STAGE 3 n=13	6.1	+	+	-	-	-
	6.8	+	+	-	-	-
	*7.3	+	+	-	-	-
	7.4	+	+	-	-	-
	*7.8	+	+	-	-	-
	*7.9	+	+	-	-	-
	*8.0	+	+	-	-	-
	8.6	+	+	-	-	-
	8.10	+	+	-	-	-
	9.4	+	+	-	-	-
	*9.5	+	+	+	-	-
	*9.6	+	+	-	-	-
	*9.9	+	+	-	+	-
STAGE 4 n=6	7.2	+	+	+	+	-
	8.4	+	+	+	+	-
	8.6'	+	+	+	+	-
	*8.11'	+	+	+	+	-
	9.8	+	+	+	+	-
	10.0	+	+	+	+	-
STAGE 5 n=4	*7.6	+	+	+	+	+
	*8.3	+	+	+	+	+
	*8.11	+	+	+	+	+
	9.9	+	+	+	+	+

Fig. 2. Developmental stages in children's acquisition of five linguistic structures

+ success
- failure

CHILD QUESTIONNAIRE

1. Child goes to public library:
   - no answer: 1
   - never: 2
   - yes, no further specification: 3
   - irregularly: 4
   - every 2 wks: 5
   - weekly: 6
   - more than wkly: 7

   Number of books usually taken home from public library:
   - no answer or none: 1
   - one: 2
   - two: 3 etc.

2. child can read: y/n (if n, skip to 17 - 3 through 16 irrelevant if child cannot read)

3. of library books taken home, child reads or listens to:
   - none: 1
   - some: 2
   - all: 3

4. child has books out of library now: y/n

   if y, child names these books:
   - none: 1
   - one: 2
   - two: 3 etc.

   2+, average readability level: 1-5

5. child names favorite books or authors:
   - none: 1
   - one: 2
   - two: 3 etc

   2+, average readability level: 1-5

6. child is in the middle of a book now: y/n

   if y, child named book: y/n

   if y, readability level: 1-5

7. child named books read before that (or recently): y/n

   if y, avg. readability level: 1-5

8. length of time elapsed since reading book in # 7:
   - today, yesterday: 4
   - less than wk: 3
   - wk-month: 2
   - more than month: 1

9. child names other books read recently:
   - none: 1
   - one: 2
   - two: 3 etc.

   2+, avg. readability level: 1-5

10. child rereads books he likes over and over: y/n

11. child names books reread many times:
   - none: 1
   - one: 2
   - two: 3 etc.

   2+, avg. readability level: 1-5

12. amount of TV per day:
   - none: 5
   - less than 1 program: 4
   - one program: 3 (1/2 hr/day)
   - two programs 2 (1 hr/day)
   - more than 1 hr/day 1

13. child reads when he gets home from school sometimes: y/n

14. time spent reading:
   - don't know: 1
   - none: 2
   - occasionally: 3
   - several times/week: 4
   - daily, under 1/2 hr: 5
   - daily, 1/2 - 1 hr: 6
   - daily, over 1 hr: 7

15. number of books read per week:
   - don't know: 1
   - none: 2
   - some: 3
   - one: 4
   - two: 5
   - three: 6 etc.

16. child named magazines he reads:
- none: 1
- one: 2
- two: 3

2+:
- children's magazine: 1
- adult magazine: 2
- both: 3

17. encyclopedia in home:
- no answer: blank
- incorrect NO: 1
- correct NO, or YES, no name: 2
- named correct encyclopedia: 3

18. child is read to at home:
- never: 1
- yes, only formerly: 2
- yes, including now: 3

(if 1, skip to 24)

19. number of readers:
- none: 1
- one: 2
- two: 3 etc.

20. frequency of being read to:
- past:
  - never: 1
  - some: 2
  - a lot: 3
- present:
  - never: 1
  - sometimes: 2
  - a few times/wk: 3
  - daily: 4

21. child names favorite books:
- none: 1
- one: 2
- two: 3 etc.

2+:
- average readability level: 1-5

22. child is read long books, cont'd from day to day: y/n

    if y, child could name title: y/n

    if Y, average readability level: 1-5

    child is in the middle of one now: y/n

    if y, child could name title: y/n

    if y, average readability level: 1-5

23. child was read to yesterday: y/n

    if y, child named book read yesterday: y/n

    if y, readability level: 1-5

24. books are bought for child: y/n

    if y, number named:
    none: 1
    one: 2
    two: 3 etc.

    2+, average readability level: 1-5

25. child read gift books: y/n

Summary Information from this Questionnaire

Total # books named at each of 5 readability levels:

level 1:
level 2:
level 3:
level 4:
level 5:

PARENT QUESTIONNAIRE

Reading done to child:

1. Child is read to, now or formerly:
   - not at all: 1
   - one reader: 2
   - two readers: 3 etc.

2. maximum amount of time child is (or was) read to each week:
   - none: 1
   - 15 mins: 2
   - 1/2 hr: 3
   - 1 hr: 4
   - 2 hrs: 5 (15 mins/day)
   - over 2 hrs: 6 (more than 15 mins/day)

3. parent named book read recently to child: y/n

   if y, readability level of book: 1-5

4. parent reads longer books, cont'd from day to day: y/n

   if y, readability level of book (average): 1-5

5. parent named books from own childhood, read to child:
   - none: 1
   - one: 2
   - two: 3 etc.

6. parent rereads books many times to child: y/n

7. parent names books reread to child many times: y/n
   if y, average readability level: 1-5

8. child visits public library:
   - never: 1
   - irregularly: 2
   - bi-weekly: 3
   - weekly 4
   - more than weekly: 5

   if more than 1: number of books taken out on the average: 1-n

   child actually reads the books: y/n

   number of books out right now:
   - none: 1
   - one: 2
   - two: 3 etc.

   average readability level of books out now, if any: 1-5

Child's Independent Reading:

☐ 1. child reads on his own: y/n

☐ 2. amount of time spent reading per week:

none:	1	
15 mins:	2	
1/2 Hr:	3	
1 hr:	4	
2 Hrs:	5	(15 mins/day)
over 2 hrs:	6	(more than 15 mins/day)

☐ 3. parent names books that child read recently:

none:	1	
one:	2	
two:	3	etc.

☐ if 2 or more: average readability level: 1-5

☐ 4. parent names books child has reread many times:

none:	1	
one:	2	
two:	3	etc.

☐ if 2 or more: average readability level: 1-5

☐ 5. child has magazine subscriptions:

none:	1	
one sub:	2	
two subs:	3	etc.

☐ 6. Encyclopedia in home:

none:	1
World Book:	2
Britannica, adult:	3
Britannica, junior:	4
Columbia:	5
Golden Book Encyclopedia of Natural Science:	6
Colliers:	7
Childcraft:	8
Standard American Illustrated Encyclopedia of the Modern World:	9
Golden Home H. S. Cultural Library:	10
McCalls:	11
Comptons:	12
don't know:	13

☐ 7. Nursery school attendance:

none:	1
one yr:	2
two yrs:	3

8. onset of speech:
   early: 3
   average: 2
   late: 1

9. siblings:

   number of children in family, incl. subject: 1-n

   position of subject from oldest:
   oldest: 1 next to oldest: 2 etc.

10. regular care other than mother pre-school: y/n

11. other languages: y/n

12. parent occupation: 01-99 (census scale)

13. father education: years achieved (hs: 12, BA: 16, M.A.: 18 Ph. D.: 20)

14. mother education: years achieved

Summary Information from this Questionnaire

Total # books named at each of 5 readability levels:
level 1:
level 2:
level 3:
level 4:
level 5:

Charlotte S. Huck:

TAKING INVENTORY OF CHILDREN'S LITERARY BACKGROUND

Part I: Mother Goose Rhymes

1. What did Little Bo-Peep do?
   a. She fell down.
   b. She went to sleep.
   c. She lost her sheep.

2. The old woman who lived in a shoe had so many children she
   a. spanked them all soundly.
   b. started a school.
   c. sent some to her sister.

3. The verse "Pussy-cat, Pussy-cat,/Where have you been?" tells about a cat that
   a. bought a fat pig.
   b. visited the queen.
   c. teased the man in the moon.

4. Little Miss Muffet was badly frightened by
   a. a toad.
   b. a snake.
   c. a spider.

5. In the verse "Hey, diddle, diddle!" the cow jumped over
   a. her calf.
   b. a brook.
   c. the moon.

6. What did Little Boy Blue do?
   a. He lost his blue sweater.
   b. He fell fast asleep under the haystack.
   c. He blew his horn.

Part II: Poetry

7. In the poem "Hiding"
   a. a little boy was hiding from his parents.
   b. a mouse was hiding in a bed.
   c. a dog was hiding in the woods.

8. The poem that begins "How do you like to go up in a swing" was written by
   a. Eugene Field
   b. Robert Louis Stevenson
   c. Dorothy Aldis.

9. The poem "The Duel" is about
   a. a gingham dog and a calico cat.
   b. two black stallions.
   c. a corporal and a private.

10. What did Mary's little lamb do?
   a. He followed her to school.
   b. He cried for his supper.
   c. He ran away and got lost.

11. The Owl and the Pussy-Cat went to sea
   a. in a natty nutshell.
   b. in a spotless space ship.
   c. in a beautiful pea-green boat.

12. Who was the visitor in the poem beginning "Someone came knocking/ At my wee, small door"?
   a. a small elf-man.
   b. a fairy.
   c. you never find out.

13. In the poem "The King's Breakfast" the king had trouble getting
   a. butter for his bread.
   b. marmelade for his muffins.
   c. coffee that suited him.

14. The Elf took the Dormouse's
   a. bright red cap.
   b. toadstool.
   c. buttered biscuits.

Part III: Folk Tales, Fairy Tales, and Fables

15. What did Jack find at the top of the beanstalk?
   a. A large bean.
   b. A castle and a giant.
   c. A fairy palace.

16. The wolf could not blow down the little pig's house made of
   a. straw.
   b. bricks.
   c. mud.

17. When the three bears came back from their walk in the woods, they found Goldilocks
   a. sitting in Papa Bear's chair.
   b. eating porridge.
   c. sleeping in Baby Bear's bed.

18. When the youngest Billy Goat Gruff trip-trapped across the bridge, he was stopped by
    a. the police patrol.
    b. the farmer's son.
    c. an ugly old troll.

19. On her way to visit Grandmother, Little Red Riding Hood met
    a. a bear.
    b. a lion.
    c. a wolf.

20. Who awakened Sleeping Beauty from her hundred-years' sleep?
    a. A barking dog.
    b. A crowing rooster
    c. A handsome young prince.

21. The Tortoise won his race with the Hare because
    a. the Hare took the wrong road.
    b. the Hare took time for a nap.
    c. the Tortoise got help from his friend the horse.

22. What was in the house that Jack built?
    a. Bags of malt.
    b. Three blind mice.
    c. A crooked dog.

23. The dog, the cat, the donkey, and the rooster
    a. traveled to the city to become musicians.
    b. acted in the town circus.
    c. frightened a band of robbers.

24. What did Rumpelstiltskin demand in payment for spinning straw into gold?
    a. The Queen's first-born child.
    b. Half of all he spun.
    c. The golden cat.

25. In the story "Stone Soup" the soldiers tricked the villagers into giving them
    a. shelter for the night.
    b. powder for their weapons.
    c. meat and vegetables.

26. How did the Prince get into the tower to see Rapunzel?
    a. By using a rope.
    b. By climbing up her long hair.
    c. By rubbing a magic stone.

27. At midnight Cinderella's coach changed back into
    a. the red balloon.
    b. a glass slipper
    c. a yellow pumpkin.

28. Who finally caught the gingerbread boy and ate him up?
    a. The fox.
    b. The cat.
    c. The Wolf.

29. How did Puss-in-Poots trick the king into thinking that his master was very rich?
    a. He obtained the ogre's castle for his master.
    b. He drove his master in a carriage to see the king.
    c. He robbed all the merchants who stopped at the inn.

30. Who saved Thumbelina from having to marry a mole?
    a. A little brown mouse.
    b. A swallow she had befriended.
    c. Her kindly old mother.

31. What did the elves do for the shoemaker and his wife?
    a. Played pranks on them so they could not make shoes.
    b. Made shoes while the shoemaker and his wife slept.
    c. Turned all the shoes to gold.

32. The ugly duckling grew up to be a beautiful
    a. peacock.
    b. pheasant.
    c. swan.

33. When the Fox was not able to get the grapes he wanted, he
    a. called on the crow to get them for him.
    b. tricked the squirrel into throwing them down.
    c. decided they were sour and he did not want them.

34. When the boy cried "Wolf!" for the third time, the townspeople
    a. paid no attention, because he had fooled them before.
    b. went to his help and killed the wolf.
    c. sent his older brother to help him guard the sheep.

Part IV: Modern Stories

35. Mr. Popper is well known for
    a. his penguins.
    b. his soda-pop factory.
    c. his trumpet playing.

36. Pippi Longstocking wanted to go to school so she could
    a. learn to read.
    b. have vacations.
    c. get out of doing some of her chores at home.

37. When Mike Mulligan's steam shovel finished her digging, she was given a new job as
    a. the furnace in the Town Hall.
    b. a trash-collection truck.
    c. a coal car for the railroad.

38. Every time that Pinocchio told a lie
    a. his father spanked him.
    b. his nose grew longer.
    c. he shrank two inches.

39. Make Way for Ducklings tells about a family of ducks in
    a. a New York pet shop.
    b. the Public Garden in Boston.
    c. the San Diego Zoo.

40. In the story Andy and the Lion, Andy
    a. trains a lion for the circus.
    b. captures a lion in Africa.
    c. removes a thorn from the lion's paw.

41. Little Sarah Noble showed her courage when
    a. a bear chased her through the forest.
    b. the boys at school teased her.
    c. she stayed alone with an Indian family.

42. Petunia learned that
    a. pigs are smarter than people.
    b. simply having a book does not make one wise.
    c. all animals like to listen to firecrackers.

43. In Millions of Cats a little old man and a little old woman
    a. found a kitten that was the prettiest of all the cats.
    b. took care of millions of cats in their home.
    c. made a million dollars from their cats.

44. The story Little Toot tells about
    a. a tugboat.
    b. a freight engine.
    c. the smallest horn player in the band.

45. The cake that the Duchess baked
    a. had too much flour in it.
    b. was too small.
    c. had too much baking powder.

46. Curious George is
    a. a little boy.
    b. a zebra
    c. a monkey

47. In The Five Chinese Brothers
    a. one brother could swallow the sea.
    b. one brother was made of stone.
    c. the brothers were really dolls.

48. Winnie-the-pooh is the story of
    a. a stuffed bear and some of his toy friends.
    b. a pet skunk.
    c. a five-year-old boy and his birthday umbrella.

49. The Little Engine is well known for saying
    a. "Clear-the-track, clear-the-track."
    b. "I-think-I-can, I-think-I-can."
    c. "Look-out-ahead, look-out-ahead."

50. In Caps for Sale
    a. two boys made money by selling caps.
    b. monkeys stole some caps.
    c. an old man gave a cap to every boy in the village.

51. Most of the things that Marco saw on Mulberry Street were
    a. in his own back yard.
    b. in the neighbor's garage.
    c. in his imagination.

52. The main character in Horton Hatches the Egg is
    a. an elephant.
    b. a chicken.
    c. a dinosaur.

53. Ferdinand is the story of a bull who liked to
    a. fight other bulls.
    b. go shopping.
    c. smell flowers.

54. The Little House became very sad and lonely when
    a. the wind blew off her shutters.
    b. a city grew up around her.
    c. squirrels took over her attic.

55. The one question that bothered the Elephant's Child was
    a. "How did I get my trunk?"
    b. "How long do I have to hold my mother's tail when we go walking?"
    c. "What does the crocodile have for dinner?"

56. The trouble with Bartholomew's hat was that
    a. it was the wrong color.
    b. it did not fit.
    c. when he took it off, another one appeared.

57. Madeline is a story about a little girl who lived in
    a. New York.
    b. Dallas.
    c. Paris.

58. In the story The Biggest Bear
    a. Johnny and his bear were imprisoned in a bear trap.
    b. the biggest bear in the London Zoo escaped.
    c. two lost children were found and cared for by a trained bear in Germany.

59. Peter Rabbit disobeyed his mother when he
    a. went into Farmer MacGregor's garden.
    b. teased Flopsy and Mopsy.
    c. did not drink his hot camomile tea.

60. Mary Poppins is the name of
    a. an English nursemaid.
    b. a stuffed doll.
    c. an award-winning cat.

	points
MEASURES BASED ON WHOLE BOOK	
1. Number and function of illustrations small; language stands alone +1 medium; pictures accompany language 0 large; pictures supplement language -1	-1,0,1
2. amount of conversation $>\frac{1}{2}$: 0 $<\frac{1}{2}$: 1	0,1
3. role of description describe things and events 0 set scene for action 1 create mood 2	0,1,2
COUNTS BASED ON 10-SENTENCE EXCERPT	
Mechanical measures	
4. average sentence length ≤ 10: ½ 26-30: 2½ 11-15: 1 31-35: 3 16-20: 1½ 36+ : 3½ 21-25: 2	½-3½
5. subordinate clauses (number counted) 0-n	0-n
6. depth of subordination one deep 0 2-3 deep 1 each 3 deep 2 each	0-n
7. variation in sentence length for contrast no 0 yes 1	0,1
8. compound verbs (number counted) 0-n	0-n
9. deletions from deep to surface structure (number counted)	0-n
Stylistic measures	
10. deviations from standard (number counted) word order 0-n construction choice 0-n word choice 0-n	0-n
11. figures of speech (number counted) personification, similes, metaphors 0-n	0-n

Table CL1. Formula for determining syntactic complexity of written material

Sample analysis to determine syntactic complexity score of book

This sample shows application of syntactic complexity formula (p.114) to average 10-sentence passage extracted from book.

CURIOUS GEORGE H. A. Rey Complexity score: 13 1/2

1. Down in the street outside the prison wall stood ^{6}a balloon man.
2. A little girl bought a balloon for her brother.
3. George watched.
4. He was curious again.
5. He felt (he MUST have a bright red balloon)^{3}.
6. He reached over and tried (to$^{1}_{\wedge}$ help himself)^{3} but -- instead of one balloon $^{1}_{\wedge}$, the whole bunch broke loose.
7. In an instant the wind ^{7}whisked them all away, and, with them, went George, ($^{1}_{\wedge}$ holding tight with both hands)^{3}.
8. ^{6}Up, up he sailed, higher and higher.
9. The houses looked ^{5}like toy houses and the people$^{1}_{\wedge}$ ^{5}like dolls.
10. George was frightened.

Key to numbers in above sentences

1- deletion
3- subordinate clause, one deep
5- figure of speech
6- word order deviation
7- word choice deviation

MEASURES (refer to Table CL1, App. p. 114) TOTAL: 13 1/2

# and funct. of illustrations:	0	var. in sent. length for contrast:	0
amount of conversation:	1	# compound verbs:	0
role of description:	0	deletions:	4
avg. sentence length (≤10)	½	word order deviations:	2
# subordinate clauses:	3	word choice deviations:	1
depth of subordination:	0	figures of speech:	2

Sample analysis to determine syntactic complexity score of book

This sample shows application of syntactic complexity formula (Table CL1, App. p. 114) to average 10-sentence passage extracted from book.

JAMES AND THE GIANT PEACH Roald Dahl Complexity score: 37 1/2

1. James glanced round the room, ($^{1}_{\wedge}$wondering [which of the others he might ^{4}be talking ^{23}to]), but they were all asleep.

2.The Old-Green Grasshopper was snoring loudly through his nose.

3. The Ladybug was making whistling noises (as she breathed)^{3}, and the Earthworm was ^{7}coiled up ^{5}like a spring at one end of his hammock, ($^{1}_{\wedge}$wheezing)^{3} and ($^{1}_{\wedge}$blowing through his open mouth)^{3}.

4. As for Miss Spider, she ^{4}had made a lovely web for herself across one corner of the room, and James could see her ($^{1}_{\wedge}$crouching right in the very center of it)^{3}, ($^{1}_{\wedge}$mumbling softly in her dreams)^{3}.

5. "I said ($^{1}_{\wedge}$turn out the light!")^{3} shouted the Centipede angrily.

6. "Are you talking to me?" James asked him.

7. "Of course I'm not talking to you, you ass!" the Centipede answered.

8. "That crazy Glow-worm ^{4}has gone to $^{1}_{\wedge}$ sleep with her light on!"

9. For the first time (since $^{1}_{\wedge}$ entering the room)^{3}, James glanced up at the ceiling - and ^{6}there he saw a most ^{7}extraordinary sight.

10. Something (that looked ^{5}like a ^{7}gigantic fly without wings)^{3} (it was at least three feet long) was standing upside down upon its six legs in the middle of the ceiling, and the tail end of this ^{7}creature ^{5}seemed to $^{1}_{\wedge}$ be ^{7}literally on fire.

Key to numbers in above sentences

1-deletion	5-figure of speech
2-subordinate clause, 2 deep	6-word order deviation
3-subordinate clause, one deep	7-word choice deviation
4-compound verb	

MEASURES (refer to Table CL1, App. p. 114) Total: 37 1/2

Number and function of illustrations:	1	Variation in s. length for contrast:	0
Amount of conversation:	1	Compound verbs; number counted:	3
Role of description:	2	Deletions:	9
Average sentence length (16-20):	1½	Word order deviations:	1
Subordinate clauses, number counted:	10	Word choice deviations:	5
Depth of subordination:	1	Figures of speech:	3

Sample analysis to determine syntactic complexity of book

Showing application of complexity formula (p.114) to 10-sentence passage of book.

THE LION, THE WITCH AND THE WARDROBE C. S. Lewis Complexity score: 51

1. He would never[4] have found his way (if the moon hadn't[4] come out [by the time he got to the other river[2,3]) -- you remember (he had[4] seen [when they first arrived at the Beavers'[2]] a smaller river [[1]_∧ flowing into the great[7] one lower down[2,3]]).
2. He now reached this and turned (to [1]_∧ follow it[8] up[3]).
3. But the little valley (down which it came[3]) was much steeper and rockier than the one (he had just left[4,3]) and [1]_∧ much overgrown with bushes, (so that he could not[4] have managed it at all in the dark[3]).
4. (Even as it was[3]), he got wet through (for[7] he had [to [1]_∧ stoop {to [1]_∧ go under branches[3]}[9,2,3]]) and (great[7] loads of snow came sliding off on to his back).
5. And (every time this happened[3]) he thought more and more (how he hated Peter - [just as if all this had[4] been Peter's fault[2,3]]).
6. But at last he came to a part (where it was more level[3]) and (the valley opened out[7,3]).
7. And there, on the other side of the river, quite close to him, in the middle of a little plain between two hills, he saw (what must be the White Witch's house[3]).
8. And the moon was shining brighter than ever.
9. The house was really a small castle.
10. It seemed (to [1]_∧ be all towers[3]); little towers with long pointed spires on them, sharp as[5] needles.

Key to numbers in above sentences

1- deletion	5- figure of speech
2- subordinate clause, two deep	7- word choice deviation
3- subordinate clause, 1 deep	8- construction choice deviation
4- compound verb	9- subordinate clause, 3 deep

MEASURES (refer to Table CL1, App. p. 114) TOTAL: 51

# and funct. of illustrations	1	var. in sent. length for contrast	0
amount of conversation	1	# compound verbs	6
role of description	2	deletions	6
avg. sentence length (21-25)	2	word choice deviation	4
# subordinate clauses	21	construction choice deviation	1
depth of subordination	6	figures of speech	1

1. Book counts from Child Questionnaire, Parent Questionnaire and Master Book List

FORMULA 1: Weighted total = (1 x # books at level 1) + (2 x # books at level 2) +.....+ (5 x # books at level 5)

FORMULA 2: Weighted total$_1$ =(1 x # books at level 1) + (5x # books at level 2) + (10x # books at level 3) + (16 x # books at level 4) + (23 x # books at level 5)

level: Books are divided into 5 levels according to grade level (readability).

level 1:	---	2.4
" 2:	2.5	- 3.5 (also level 1 factuals)
" 3:	3.6	- 4.6+ (also level 2 factuals)
" 4:	5.0	- 6.6+
" 5:	7.0 +	

Grade levels of books were assigned according to E.C.R.I.'s Library Resources catalog of children's books, which utilizes the Spache readability formula for Grades 1-3, and Dale-Chall from Grade 4 up.

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2. Word counts of books read and heard during tracked week

FORMULA: Weighted total = (1 x # wds at level 1) + (2 x #wds at level 2) + (3 x # wds at level 3) +.....+ (17 x # wds at level 17)

level: Books are divided into 17 levels according to complexity scores listed in Table CF3, App. p. 119 .

level 1:	0	- 8½
" 2:	9	- 11½
" 3:	12	- 14½
" 4:	15	- 17½
" 5:	18	- 20½
.	.	.
.	.	.
.	.	.
.	.	.
level 17:	54	- 56½

Table WF1. Weighting formulas used for book counts and word counts

Table CF2: Analyzed books read and heard during tracked week, listed alphabetically by author

BOOKS HEARD

Author	Title	compl. score	child who named book		
			grade	age	reading gr. score compr.
Andersen, H.C.	The Snow Queen	33	2	8.0	4
Andersen, H.C.	The Wild Swans (tr. M.R. James)	39 1/2	K	5.11	-
Atwater, R.&F.	Mr. Popper's Penguins	33	1	7.2	3.7
Austin	Peter Churchmcuse	28	1	6.8	-
Bailey, C.S.	Miss Hickory	33 1/2	2	7.10	5.1
Banner, A.	Around the World with Ant & Bee	19 1/2	1	6.10	3.0
Bannerman, H.	Little Black Sambo	14	1	6.8	-
Bemelmans, L.	Madeline	15	K	6.1	-
Burgess, T.	*On the Green Meadows	18 1/2	K	5.10	-
Burgess, T.	Mother West Wind's Neighbors	18 1/2	1	7.1	2.3
Cleary, B.	Henry and the Clubhouse	23 1/2	1	6.9	2.8
-	Comics (Sunday Paper)	5	3	8.10	3.6
Dahl, R.	James and the Giant Peach	37 1/2	2	8.0	4.0
de la Mare, W.	Stories from the Bible	28	K	5.11	-
Disney, W.	Lucky Pup	12 1/2	K	5.9	-
Disney, W.	Mary Poppins	12	1	6.8	-
Disney, W.	101 Dalmations	9 1/2	K	5.9	-
Disney, W.	Snow White	15 1/2	K	5.9	-
"	"	"	K	6.1	-
Doyle, A.C.	Adventures of Sherlock Holmes	51	4	9.9	6.3
Evans, E.K.	*All About Dinosaurs	20	1	6.10	3.0
Garis, H.R.	Uncle Wiggily's Automobile	22 1/2	1	6.8	-
Garis, H.R.	Uncle Wiggily's Story Book	23 1/2	K	5.10	-
"	"	"	3	9.5	3.6
Gates, Huber, Peardon	We Grow Up	11	2	7.6	2.4
Green, R.L.	Tales of the Greek Heroes	33 1/2	2	7.2	2.4
Grimm	The Frog Prince (in Grimm's Household Stories, tr. Crane)	50	4	9.6	8.4
Grimm	Snow White and Rose Red	25	K	5.11	-
Killillea, M.	The Story of Karen (Wren)	15	2	8.0	4.0
Kipling, R.	Jungle Tales (The Jungle Book)	40 1/2	3	9.5	3.6
Leaf, M.	Ferdinand	16	K	6.1	-
Lewis, C.S.	The Lion, the Witch & the Wardrob	51	3	8.6	4.3
Lewis, C.S.	The Magician's Nephew	31	2	7.2	3.1
-	Life Magazine	25 1/2	2	7.6	2.4
"	"	"	3	8.10	3.6
MGM	Tom & Jerry and the Toy Circus	12	K	5.9	-
McCloskey, R.	Make Way for Ducklings	18	1	6.10	3.0
Milne, A.A.	When We Were Very Young	41 1/2	1	6.8	-
Milne, A.A.	Winnie the Pooh	33 1/2	1	6.9	2.8
"	"	"	1	7.2	3.7
"	"	"	3	8.11	6.2
-	New York Times	30	2	7.6	2.4
Olds, E.	Plop, Plop, Ploppie	12 1/2	K	6.1	-
Piper, W.	The Little Engine that Could	12 1/2	K	5.11	-
"	"	"	1	7.2	3.7

*substitute title (same author) for book reported by child

CF2.

			gr.	age	rdg gr sc
Piper, W. (ed.)	Stories that Never Grow Old	28	K	5.11	-
Potter, B.	The Roly-Poly Pudding	21 1/2	1	6.10	3.0
Potter, B.	The Tale of Jemima Puddle-Duck	23	1	6.10	3.0
Rey, H.A.	Curious George Goes to the Hospital	16	K	6.10	-
Rey, H.A.	Find the Constellations	28 1/2	K	6.1	-
Scarry, R.	Busy, Busy World	11 1/2	K	6.1	-
Scarry, R.	Tinker & Tanker	4 1/2	K	6.1	-
Schick, E.	I'm Going to the Ocean	17	1	7.2	3.7
Seuss	Bartholomew and the Oobleck	4 1/2	K	6.1	-
Seuss	One Fish, Two Fish, Red Fish, Blue Fish	9 1/2	K	6.1	-
Seuss	Yertle the Turtle	11	1	6.8	-
—	The Three Bears	4 1/2	K	5.9	-
Tolkien, J.R.	The Hobbit	54	2	7.8	4.9
Wahl, J.	May Horses	20	2	7.6	2.4
White, E.B.	Charlotte's Web	26 1/2	K	5.11	-
Wilder, L.I.	The Little House in the Big Woods	27	1	6.9	2.8
Wyss	Swiss Family Robinson	39	3	8.6	4.3

BOOKS READ

Author	Title	compl. score	child who named book		
			grade	age	reading gr. score compr.
Adamson, J.	Born Free	32 1/2	4	9.8	5.6
Alcott, L.M.	Little Women	43 1/2	2	7.3	3.7
Anckarsvard, K.	The Mysterious Schoolmaster	28 1/2	4	9.5	6.0
Arthur, R.	Secret of Skeleton Island (Hitchcock)	31	4	9.9	6.3
Atwater, R.&F.	Mr. Popper's Penguins	33	1	7.2	3.7
"	"	"	4	9.5	6.0
Aung & Trager	A Kingdom Lost for a Drop of Honey & other Burmese Folk Tales	21	2	8.0	4.0
Barry, R.	Mr. Willowby's Christmas Tree	14 1/2	2	7.8	4.9
Batchelor, I.F.	Superstitious? Here's Why.	23 1/2	4	9.6	8.4
Baum, L.F.	The Wizard of Oz (abr. 39¢ ed.)	11	2	7.8	4.9
—	Beatles Yellow Submarine	21	4	9.6	8.4
Beim, L.&J.	Two is a Team	16	1	6.10	3.0
Bennett, A.	Little Witch	28 1/2	1	7.1	2.3
Bethell, J.	Petey the Peanut Man	6 1/2	1	6.3	3.4
—	Bible	35	4	10.0	6.5
Bonsall, C.	The Case of the Dumb-bells	4 1/2	1	6.10	3.0
—	Boston Globe	25	4	9.8	5.6
Butterworth	The Enormous Egg	13 1/2	2	8.3	5.4
Carleton, B.O.	Mystery of the Witches' Bridge	23	4	9.5	6.0
Carlson, G.	Jokes and Riddles	10	1	6.9	2.8
Cavanah, F.	Abe Lincoln Gets his Chance	6 1/2	4	9.6	8.4
Child Guidance Action Book	Story of Peter Rabbit	5 1/2	K	5.11	-
Cleary, B.	Ellen Tebbits	38	2	7.8	4.9
Collodi, C.	The Adventures of Pinocchio	23 1/2	2	8.3	5.4
Comics	Sunday paper or comic books (12 children reporting)	5 etc.	K	5.11	-

CF 2.

			gr	age	rdg gr sc
Compton's Ency.	Finger Painting Entry	11	2	8.3	5.9
Dahl, R.	Charlie & the Chocolate Factory	25	3	9.5	3.6
Davidson, M.	Helen Keller's Teacher	9 1/2	4	9.6	8.4
Dayrell, C.	Why the Sun & the Moon Live in the Sky	32 1/2	2	7.6	2.4
DeJong, M.	Hurry Home, Candy	21	2	7.8	4.9
Devaney, J.	The Baseball Life of Mickey Mantle	18	3	8.6	7.0
Dixon, F.	The Bombay Boomerang (Hardy Boys)	18	3	8.6	7.0
Duvoisin, R.	Petunia	16	1	7.1	2.3
Eastman, P.D.	Go, Dog, Go	1 1/2	2	7.9	2.4
Easy Growth in Reading	The Frog & the Red Bird (Good Stor.)	7 1/2	1	6.3	3.4
Easy Growth in R.	The Frog's Secret (Good Stories)	5 1/2	1	6.3	3.4
—	Evergreen Review	24	3	8.11	7.0
—	*First Book of Indians	21 1/2	4	10.0	6.5
Gates, Huber, Peardon	We Grow Up	11	2	7.6	2.4
"	"	"	2	8.3	5.4
Gelman, S.	Pro Football Heroes	17 1/2	3	8.6	7.0
Giant Golden Book	-- Dinosaurs	8	1	7.1	2.3
Goudge, E.	Little White Horse	51	2	8.3	5.4
Grimm	The Frog Prince (tr. Crane)	50	2	7.2	3.1
Grimm	The Goose Girl (easy version)	27 1/2	2	7.2	3.1
Haywood, C.	Eddie's Pay Dirt	6 1/2	2	7.8	4.9
Haywood, C.	Everready Eddie	14	1	7.2	3.7
Henry, M.	Sea Star	20	4	9.5	6.0
Highlights	Vol. 24, no. 8, Aug-Sept. '69	14	2	7.10	5.1
"	"	"	4	9.6	8.4
Hildreth, G.	I Know a Secret	8 1/2	1	6.9	2.8
Horseman, E.	Hubble's Bubble	16	3	8.11	6.2
Hutchins, P.	Tom & Sam	20 1/2	1	7.1	2.3
Jansson, T.	Tales from Moominvalley	49	3	9.5	3.6
Johnson, C.	Harold & the Purple Crayon	10	1	6.10	3.0
Kessler, L.	Mr. Pines' Mixed Up Signs	7 1/2	1	6.3	3.4
Krauss, R.	The Trouble with Spider	11 1/2	1	6.10	3.0
LaGallienne, E. (tr.)	The Emperor's Nightingale	33	2	8.3	5.4
Leavell + Fiebele	Open Windows	16	1	6.9	2.8
—	Life Magazine	25 1/2	2	7.10	5.1
	"	"	3	8.10	3.6
Lindgren, A.	Pippi Longstocking	33 1/2	2	7.8	4.9
"	"	"	3	8.11	7.0
Lofting, H.	The Story of Doctor Dolittle	39 1/2	4	9.6	8.4
McCloskey, R.	Homer Price	22 1/2	3	8.11	7.0
McKee, Harrison, McCowan, Lehr	The Big Show	2 1/2	K	5.11	-
McKee & as above	High Roads	12 1/2	4	9.8	5.6
McKee & as above	Jack & Janet	8	K	5.11	-
McKee & as above	Tip & Mitten	1 1/2	K	5.11	-
"	"	"	1	6.8	-
McKee & as above	Up & Away	8 1/2	K	5.11	-
—	Mad Magazine	21	3	8.6	7.0
			4	10.0	6.5
Moore, C.C.	A Visit from St. Nicholas (The Night Before Christmas)	27 1/2	2	7.8	4.9
My Weekly Reader	-- 3, News Story, 39, 32 5/13/70	7 1/2	4	10.0	6.5
National Geographic	-- "The Rocky's Pot of Gold - Colorado" -- 136:2 Aug. '69	26 1/2	2	8.3	5.4

(118a)

* substitute title for book reported

CF2.

			gr	age	rdg gr sc
Norton, M.	Borrowers Aloft	56 1/2	2	8.3	5.4
Ousley, R.	The Little White House	9 1/2	K	5.11	-
Parish, P.	Amelia Bedelia (I Can Read)	6 1/2	2	8.3	5.4
Payne, E.	Katy No-Pocket	12	1	7.1	2.3
Perkins, L.F.	The Indian Twins	23 1/2	1	6.3	3.4
Piper, W.	The Little Engine that Could	12 1/2	2	7.9	2.4
Pohlmann, L.	Myrtle Albertina's Secret	23	2	8.3	5.4
Potter, B.	The Tale of Peter Rabbit	22 1/2	2	7.8	4.9
Rey, H.A.	Curious George	13 1/2	1	7.1	2.3
Rey, H.A.	Find the Constellations	28 1/2	2	8.3	5.4
St. Exupéry	The Little Prince	20	2	7.3	3.7
Schulz, C.	* Good Ol' Snoopy	8 1/2	2	7.10	5.1
"			2	8.3	5.4
"	*etc.*		3	9.4	6.6
"			4	9.6	8.4
"			4	9.8	5.6
			4	10.0	6.5
Sendak, M.	Pierre (Nutshell Library)	13 1/2	2	7.6	2.4
Seuss	Happy Birthday to You	18	2	7.10	5.1
Seuss	Sneetches	12	3	9.4	6.6
Seuss	Yertle the Turtle	11	3	9.4	6.6
Smith, N.W.	The Ghostly Trio	26 1/2	4	9.5	6.0
Sobol, D.	Encyclopedia Brown Gets his Man	25	4	9.6	8.4
Sobol, D.	Encylcopedia Brown Strikes Again	25	4	9.8	5.6
	Sports Illustrated, May 18, 1971	24 1/2	3	8.6	7.0
Stevens, C.	* Rabbit, Skunk & the Scary Rock	7 1/2	2	7.9	2.4
Stevenson, R.L.	A Child's Garden of Verses	33	2	7.2	3.1
Tibble	Helen Keller	22	2	8.3	5.4
Tolkien, J.R.	The Hobbit	54	3	8.11	7.0
Ungerer, T.	Crictor	15 1/2	4	9.6	8.4
World Book Encyclopedia -- Papier-mache entry		17	2	7.10	5.1
Young, Leary, Myers,	Uncle Funny Bunny	9 1/2	2	7.10	5.1
"	"	"	3	8.6	7.0

* substitute title (same author) for book reported by child

Table CF3. Analyzed books read and heard during tracked week, listed by complexity score

BOOKS HEARD

compl. score	Child who named book: grade	age	reading gr. score (comp.)	Author	Title
4 1/2	K	5.9	-	—	The Three Bears
4 1/2	K	6.1	-	Scarry, R.	Tinker & Tanker
4 1/2	K	6.1	-	Seuss	Bartholomew & the Oobleck
5	3	8.10	3.6	—	Comics (Sunday Paper)
9 1/2	K	5.9	-	Disney, W.	101 Dalmations
9 1/2	K	6.1	-	Seuss	One Fish, Two Fish, Red Fish Blue Fish
11	2	7.6	2.4	Gates, Huber Peardon	We Grow Up
11	1	6.8	-	Seuss	Yertle the Turtle
11 1/2	K	6.1	-	Scarry, R.	Busy, Busy World
12	1	6.8	-	Disney, W.	Mary Poppins
12	K	5.9	-	MGM	Tom & Jerry & the Toy Circus
12 1/2	K	5.9	-	Disney, W.	Lucky Pup
12 1/2	K	6.1	-	Olds, E.	Plop, Plop, Ploppie
12 1/2	K	6.1	-	Piper, W.	The Little Engine that Could
"	1	7.2	3.7	" "	" "
14	1	6.8	-	Bannerman, H.	Little Black Sambo
15	K	6.1	-	Bemelmans, L.	Madeline
15	2	8.0	4.0	Killillea, M.	The Story of Karen (Wren)
15 1/2	K	5.9	-	Disney, W.	Snow White
"	K	6.1	-	" "	" "
16	K	6.1	-	Leaf, M.	Ferdinand
16	K	6.1	-	Rey, H.A.	Curious George Goes to the Hospital
17	1	7.2	3.7	Schick, E.	I'm Going to the Ocean
18	1	6.10	3.0	McCloskey, R.	Make Way for Ducklings
18 1/2	K	5.10	-	* Burgess, T.	On the Green Meadows
18 1/2	1	7.1	2.3	Burgess, T.	Mother West Wind's Neighbor
19 1/2	1	6.10	2.3	Banner, A.	Around the World with Ant + Bee
20	1	6.10	3.0	Evans, E. K.	* All About Dinosaurs
20	2	7.6	2.4	Wahl, J.	May Horses
21 1/2	1	6.10	3.0	Potter, B.	The Roly-Poly Pudding
22 1/2	1	6.8	-	Garis, H. R.	Uncle Wiggily's Automobile
23	1	6.10	3.0	Potter, B.	The Tale of Jemima Puddle-Duck
23 1/2	1	6.9	2.8	Cleary, B.	Henry & the Clubhouse
23 1/2	K	5.10	-	Garis, H.R.	Uncle Wiggily's Story Book
"	3	9.5	3.6	" "	" "
25	K	5.11	-	Grimm	Snow White & Rose Red
25 1/2	2	7.6	2.4	—	Life Magazine
"	3	8.10	3.6		" "
26 1/2	K	5.11	-	White. E. B.	Charlotte's Web
27	1	6.9	2.8	Wilder, L. I.	The Little House in the Big Woods
28	K	5.11	-	Austin	Peter Churchmouse
28	K	5.11	-	de la Mare, W.	Stories from the Bible
28	K	5.11	-	Piper, W. (ed)	Stories that Never Grow Old
28 1/2	K	6.1	-	Rey, H.A.	Find the Constellations
30 1/2	2	7.6	2.4	—	New York Times

* substitute title (same author) for book reported by child

CF3.

	gr	age	rdg gr sc		
31	2	7.2	3.1	Lewis, C.S.	The Magician's Nephew
33	2	8.0	4.0	Andersen, H.C.	The Snow Queen
33	1	7.2	3.7	Atwater, R.&F.	Mr. Popper's Penguins
33 1/2	2	7.10	5.1	Bailey, C.S.	Miss Hickory
33 1/2	2	7.2	3.1	Green, R.L.	Tales of the Greek Heroes
33 1/2	1	6.9	2.8	Milne, A.A.	Winnie the Pooh
"	1	7.2	3.7	"	" "
"	3	8.11	6.2	"	" "
37 1/2	2	8.0	4.0	Dahl, R.	James and the Giant Peach
39	3	8.6	4.3	Wyss	Swiss Family Robinson
39 1/2	K	5.11	-	Andersen, H.C.	The Wild Swans (tr. M.R. James)
40 1/2	3	9.5	3.6	Kipling, R.	Jungle Tales (The Jungle Book)
41 1/2	1	6.8	-	Milne, A.A.	When We WEre Very Young
50	4	9.6	8.4	Grimm	The Frog Prince (in Grimm's Household Stories, tr. Crane)
51	4	9.9	6.3	Doyle, A.C.	Adventures of Sherlock Holmes
51	3	8.6	4.3	Lewis, C.S.	The Lion, the Witch, and the Wardrobe
54	2	7.8	4.9	Tolkien, J.R.	The Hobbit

BOOKS READ

compl. score	Child who named book: grade	age	reading gr. score (comp.)	Author	Title
1 1/2	2	7.9	2.4	Eastman, P.D.	Go, Dog, Go
1 1/2	K	5.11	-	McKee, Harrison McCowan, Lehr	Tip & Mitten
1 1/2	1	6.8	-	McKee & as above	" "
2 1/2	K	5.11	-	McKee & as above	The Big Show
4 1/2	1	6.10	3.0	Bonsall, C.	The Case of the Dumb-bells
5		(12 children)		—	Comics: Sunday paper or Comic books
5 1/2	K	5.11	-	Child Guidance Action Book	Story of Peter Rabbit
5 1/2	1	6.3	3.4	Easy Growth in Reading	The Frog's Secret (Good Stories)
6 1/2	1	6.3	3.4	Bethell, J.	Petey the Peanut Man
6 1/2	4	9.6	8.4	Cavanah, F.	Abe Lincoln Gets his Chance
6 1/2	2	7.8	4.9	Haywood, C.	Eddie's Pay Dirt
6 1/2	2	8.3	5.4	Parish, P.	Amelia Bedelia (I Can Read)
7 1/2	1	6.3	3.4	Kessler, L.	Mr. Pines' Mixed Up Signs
7 1/2	1	6.3	3.4	Easy Growth in Reading	The Frog & the Red Bird (Good Stories)
7 1/2	4	10.0	6.5	My Weekly Reader,	3, News Story, 39, 32 5/13/70
7 1/2	2	7.9	2.4	Stevens, C.	Rabbit, Skunk & the Scary Rock
8	1	7.1	2.3	Giant Golden Book	Dinosaurs
8	K	5.11	-	McKee, Harrison, McCowan, Lehr	Jack & Janet
8 1/2	1	6.9	2.8	Hildreth, G.	I Know a Secret
8 1/2	K	5.11	-	McKee, Harrison, McCowan, Lehr	Up & Away

CF 3.

	gr	age	rdg gr sc		
8 1/2	2	7.10	5.1	Schulz, C.	*Good Ol' Snoopy
"	2	8.3	5.4	"	
"	3	9.4	6.6	"	etc.
"	4	9.6	8.4	"	
"	4	9.8	5.6	"	
"	4	10.0	6.5	"	
9 1/2	4	9.6	8.4	Davidson, M.	Helen Keller's Teacher
9 1/2	K	5.11	-	Ousley & Russell	The Little White House
9 1/2	2	7.10	5.1	Young, Leary, Myers	Uncle Funny Bunny
"	3	8.6	7.0	Young & as above	" " "
10	1	6.9	2.8	Carlson, G.	Jokes & Riddles
10	1	6.10	3.0	Johnson, C.	Harold & the Purple Crayon
11	2	7.8	4.9	Baum, L.F.	The Wizard of Oz (abr. 39¢ ed.)
11	2	8.3	5.4	Compton's Ency.	Finger Painting
11	2	7.6	2.4	Gates, Huber, Peardon	We Grow Up
"	2	8.3	5.4	Gates & as above	" " "
11	3	9.4	6.6	Seuss	Yertle the Turtle
11 1/2	1	6.10	3.0	Krauss, R.	The Trouble with Spider
12	1	7.1	2.3	Payne, E.	Katy No-Pocket
12	3	9.4	6.6	Seuss	Sneetches
12 1/2	4	9.8	5.6	McKee, Harrison, McCowan, Lehr	High Roads
12 1/2	2	7.9	2.4	Piper, W.	The Little Engine that Could
13 1/2	2	8.3	5.4	Butterworth	The Enormous Egg
13 1/2	1	7.1	2.3	Rey, H.A.	Curious George
13 1/2	2	7.6	2.4	Sendak, M.	Pierre (Nutshell Library)
14	1	7.2	3.7	Haywood, C.	Everready Eddie
14	2	7.10	5.1	—	Highlights Vol. 24, 8, Aug-Sept '69
"	4	9.6	8.4		"
14 1/2	2	7.8	4.9	Barry, R.	Mr. Willowby's Christmas Tree
15 1/2	4	9.6	8.4	Ungerer, T.	Crictor
16	1	6.10	3.0	Beim, L.&J.	Two is a Team
16	1	7.1	2.3	Duvoisin, R.	Petunia
16	3	8.11	6.2	Horseman, E.	Hubble's Bubble
16	1	6.9	2.8	Leavell, U.W.& M.L. Friebele	Open Windows
16	1	7.1	2.3	Rey, H.A.	Curious George Goes to the Hospital
16 1/2				Schulz	Nobody's Perfect
17	2	7.10	5.1	World Book Ency.	entry on Papier-mache
17 1/2	3	8.6	7.0	Gelman, S.	Pro Football Heroes
18	3	8.6	7.0	Devaney, J.	The Baseball Life of Mickey Mantle
18	4	9.9	6.3	Dixon, F.W.	The Bombay Boomerang (Hardy Boys)
18	2	7.1	5.1	Seuss	Happy Birthday to You
20	4	9.5	6.0	Henry, M.	Sea Star
20	2	7.3	3.7	St. Exupéry, A.	The Little Prince
20 1/2	1	7.1	2.3	Hutchins, P.	Tom & Sam lost
21	2	8.0	4.0	Aung & Trager	A Kingdom for a Drop of Honey & other Burmese Folk Tales
21	4	9.6	8.4	—	Beatles Yellow Submarine
21	2	7.8	4.9	DeJong, M.	Hurry Home, Candy

(121a)

* substitute title (same author) for book reported by child

CF3.

	gr	age	rdg gr sc		
21	3	8.6	7.0		Mad Magazine
"	4	10.0	6.5		" "
21 1/2	4	10.0	6.5	—	* First Book of Indians
22	2	8.3	5.4	Tibble	Helen Keller
22 1/2	3	8.11	7.0	McCloskey, R.	Homer Price
22 1/2	2	8.11	7.0	Potter, B.	The Tale of Peter Rabbit
23	4	9.5	6.0	Carleton, B.O.	Mystery of the Witches' Bridge
23	2	8.3	5.4	Pohlmann, L	Myrtle Albertina's Secret
23 1/2	4	9.6	8.4	Batchelor, I.F.	Superstitious? Here's Why.
23 1/2	2	8.3	5.4	Collodi, C.	The Adventures of Pinocchio
23 1/2	1	6.3	3.4	Perkins, L.F.	The Indian Twins
24	3	8.11	7.0	—	Evergreen Review
24 1/2	3	8.6	7.0	—	Sports Illustrated, May 18, 1970
25	4	9.8	5.6	—	Boston Globe
"	4	9.9	6.3		" "
25	3	9.5	3.6	Dahl, R.	Charlie & the Chocolate Factory
25	4	9.6	8.4	Sobol, D.	Encyclopedia Brown Gets his Man
25	4	9.8	5.6	Sobol, D.	Encyclopedia Brown Strikes Again
25 1/2	2	7.10	5.1	—	Life Magazine
"	3	8.10	3.6	—	" "
26 1/2	2	8.3	5.4	—	National Geographic-"The Rocky's Pot of Gold - Colorado" 136:2 Aug.'69
26 1/2	4	9.5	6.0	Smith, N.W.	The Ghostly Trio
27 1/2	2	7.2	3.1	Grimm	(Fairy Tales)- The Goose Girl (easy version)
27 1/2	2	7.8	4.9	Moore, C.C.	A Visit from St. Nicholas (The Night Before Christmas)
28	4	10.0	6.5	de la Mare, W.	Stories from the Bible
28 1/2	4	9.5	6.0	Anckarsvard, K.	The Mysterious Schoolmaster
28 1/2	1	7.1	2.3	Bennett, A.	Little Witch
28 1/2	2	8.3	5.4	Rey, H.A.	Find the Constellations
31	4	9.9	6.3	Arthur, R.	Secret of Skeleton Island (Hitchcock)
32 1/2	4	9.8	5.6	Adamson, J.	Born Free
32 1/2	2	7.6	2.4	Dayrell, C.	Why the Sun & the Moon Live in the Sky
33	1	7.2	3.7	Atwater, R.&F.	Mr. Popper's Penguins
"	4	9.5	6.0	"	" " "
33	2	8.3	5.4	LaGallienne, E.(tr.)	The Emperor's Nightingale
33	2	7.2	3.1	Stevenson, R.L.	A Child's Garden of Verses
33 1/2	2	7.8	4.9	Lindgren, A.	Pippi Longstocking
"	3	8.11	7.0	"	" "
35	4	10.0	6.5	—	Bible
38	2	7.8	4.9	Cleary, B.	Ellen Tebbits
39 1/2	4	9.6	8.4	Lofting, H.	The Story of Dr. Doolittle
43 1/2	2	7.3	3.7	Alcott, L.M.	Little Women
49	3	9.5	3.6	Jansson, T.	Tales from Moominvalley
50	2	7.2	3.1	Grimm	Fairy Tales: The Frog Prince (tr. Crane, Dover Press)
51	2	8.3	5.4	Goudge, E.	Little White Horse
54	3	8.11	7.0	Tolkien, J.R.	The Hobbit
56 1/2	2	8.3	5.4	Norton, M.	Borrowers Aloft

(121b)

* substitute title for book reported

TABLE CQ1

BOOKS NAMED BY CHILDREN ON CHILD QUESTIONNAIRE, listed by grade of children

Kindergarten - 6 children

Bible stories
The Cat in the Hat
Charlotte's Web
Chitty Chitty Bang Bang
Cinderella *
Curious George
The Dog that Chases a Cat
Fairy Tales
Ferdinand the Bull
Five Little Firemen
Flintstones
Hop on Pop
Life Magazine
Madeline
Mary Poppins (easy version)
Raggedy Andy
Ranger Rick Magazine
Read me a Story
Rudolph the Red-nosed Reindeer
Sleeping Beauty *
Snow White
Winnie the Pooh

Grade I - 7 children

Are you my mother?
Birds Eat and Eat
Charlotte's Web
Comics: Pixie and Dixie
Tom and Jerry
Batman and Robin
Digging for Dinosaurs
The Fire Engine Book
The Green Cat (story)
Hop on Pop
I Know a Secret (at school)
Jack and the Beanstalk
Johnny Appleseed
Life Magazine
Little Elf Book
Little Frog Books
Mad Magazine
Madeline
Mike Mulligan and his Steam Shovel
The Old Fisherman
The Owl and the Pussy Cat
Pinocchio
Put me in the Zoo
Robin Hood Books (series)
Seuss books
Sleeping Beauty
Scarry, Richard books
Snoopy books (cartoons)
The Song of the Birds
Space Book
Tell me Cat
Ten Apples Up On Top
Tip and Mitten
The Wishing Well (school)
Winnie the Pooh
The Wonderful World of Dinosaurs

Grade II - 10 children

ABC's of Astronomy
Abraham Lincoln
Andersen, H. C., Fairy Tales
Andy and the Lion
The Arctic
Baba Yaga
Ballerina Bess
Bambi
Bible Stories
The Bee Hive
Bibs (in school)
The Biggest Bear
Charlie and the Chocolate Factory
Charlotte's Web
Chitty Chitty Bang Bang
Cinderella *

* indicates books named by 2 children
** indicates books named by 3 children, etc

TABLE CQ1 (continued)

Grade II (continued)

Civil War Book
Comics: The Archies
Sad Sack
Walt Disney Digest
Cook book
Devil's Doorstep
Dr. Dolittle *
Eagle Feather
Edith and Mr. Bear
Ellen Tebbits
Elsa
Fairy Tales
Fantasyland
Ghost of Windy Hill
Glinda
Goldilocks and the Three Bears
Greek Myths
Green Eggs and Ham
Hector Protector
Highlights *
How Animals Sleep
How Many do you Want
Hurry up Slowpoke
The Incredible Thrilling Adventures of the Rock
In Johnny Crow's Garden
Island of the Blue Dolphins
Jennie and her Juniors
The Lion, the Witch and the Wardrobe
Life Magazine ***
Little Bear (series)
Little Eddie
Look magazine
Lost Princess of Oz
The Magic Finger
The Magician's Nephew
Make Way for Ducklings
More Friends and Neighbors (in school)
Mother Goose
Mouse House
My Father's Dragon
New York Times
Newsweek
Old Mother Westwind
On We Go (school)
One Was Johnny
Pick a Riddle
Pippi Longstocking *
Plain Girl
Playboy Magazine
Punch and Judy
Question and Answer book
Rabbit, Skunk and Spook
Raggedy Ann
Ranger Rick Magazine
The Red Balloon
Rinky Tink in Oz
The Secret Hideout
Seuss *
Sports Illustrated
Three Bears
Three Little Pigs
Topsy Turvy
Tricky Questions to Fool Your Friends
"Twas the Night Before Christmas"
Waggles and the Dogcatcher
The Wave
Where the Wild Things Are
Wizard of Oz
Yellow Submarine

Grade III - 7 children

Alice in Wonderland *
Animal Riddles
The Ant Men
Arrow Book of Brain Boosters
Boxcar Children
Busy, Busy World
Charlie Brown Books *
Charlie and the Chocolate Factory *
Chitty Chitty Bang Bang **
Comics: Archie
Hot Stuff
Pogo
Sugar and Spike
Curious George
The Day that Monday Ran Away
Dr. Dolittle
Fairy Tales *
First Days of the World

TABLE CQ1 (continued)

Grade III (continued)

Heidi
Hitchcock Stories
Hobbitt
Hockey Illustrated
How to Earn Money
Jimmy and the Vanishing Lessons
Jungle Book
Just So Stories
Life Magazine **
Little Ghost
Mad Magazine *
Madeline and the Gypsies
Magic Book
Make the Team in Baseball
Mother Goose (Big Mother Goose Book)
Mr. Pudgins
Mystery of the Whispering Mummy
National Geographic
Oliver Twist
Peanuts
Playboy
Pop Up Books
Project Apollo
Ribsy
Scientific American
The Sea (Life Science Book)
Sea Star
Secret Garden *
Seuss
Sneetches and other Stories
Snow Queen
Space Books (3)
Space Cat
Spook
Sports Illustrated *
Stuart Little *
Swiss Family Robinson
Tales from Moominvalley
Tall Book of Fairy Tales
Through the Looking Glass
To Pass the Time Away
The Trouble with Terry
TV Works Like This
Under the Sea
Vogue
Wilder, L.I.
  By the Shores of Silver Lake
  Farmer Boy
  Little House in the Big Woods
  Little Town on the Prairie *
  The Long Winter
  On the Banks of Plum Creek
  These Happy Golden Years *
Wind in the Willows
Wizard of Oz

Grade IV - 6 children

American Revolution
Anne of Green Gables
Beyond Rope and Fence
Bible Stories
Black Beauty
Borrowers
Borrowers Aloft
Cleary, Beverly (several)
Comics: Chip'n'Dale
Dr. Dolittle
Encyclopedia Brown series (5)
F-Troop
Fairy Books: Red, Purple, Brown, etc.
FBI
Five Little Peppers
Frog Prince
The Gnomobile
Golden Book of Gods and Goddesses
Good Housekeeping
Greek Myths
Happy Hollisters and the
  Lucky Pennies
Hardy Boys series:
  Criss Cross Shadow
  The Melted Coins
  Phantom Freighter
  Yellow Feather Mystery
Helen Keller's Teacher
Highlights
Hitchcock mystery series:
  Secret of Skeleton Island
  Secret of Terror Castle
Homes and Gardens
I Was the Captain of the
  Franklin
Jo's Boys

TABLE CQ1 (continued)

Grade IV (continued)

Life Magazine *
Linda's Air Mail Letter
Little Engine that Could
Little Men
Little Women
Look Magazine *
Mad Magazine
Magic book
Mike Mulligan and his Steam Shovel
Mother Goose
Mr. Popper's Penguins
Much Too Much (a play)
Mustang, Wild Spirit of the West
National Geographic *
New Yorker
newspaper *
Ranger Rick Magazine
Rapunzel
Readers Digest
Robin Hood
Russian Fairy Tales
Sea Star
Secret Garden
Secret Shoemaker
Seuss
Slide, Charlie Brown, Slide
Sports Illustrated
Three Horses
Tippy the Chimp
Trudi and the Milch Cow
Winnie the Pooh
Wilder, L.I.:
  By the Shores of Silver Lake
  Farmer Boy
  Little House in the Big Woods
  Little Town on the Prairie
  The Long Winter
  On the Banks of Plum Creek
  These Happy Golden Years
Women's Day
Wright, Orville and Wilbur

TABLE CQ2

Books named more than once on Child Questionnaire, listed in order of frequency

Title	number of children who named the books					
	K	1	2	3	4	total
Life Magazine	1	1	4	3	2	11
Seuss (any)	2	2	2	2	1	9
Fairy Tales (asstd)	1		2	3		6
Chitty Chitty Bang Bang	1		1	3		5
Cinderella	2		2			4
Comics (any)		1	1	1	1	4
Dr. Dolittle			2	1	1	4
Mad Magazine		1		2	1	4
Sports Illustrated			1	2	1	4
Bible Stories	1		1		1	3
Charlie Brown books				2	1	3
Charlie and the Chocolate Factory			1	2		3
Charlotte's Web	1	1	1			3
Highlights			2		1	3
Look Magazine			1		2	3
Madeline books	1	1		1		3
Mother Goose			1	1	1	3
National Geographic				1	2	3
Ranger Rick Magazine	1		1		1	3
Secret Garden				2	1	3
Sleeping Beauty	2	1				3
Wilder, L. I. books				2	1	3
Winnie the Pooh	1	1			1	3
Curious George	1			1		2
Greek Myths			1		1	2
Hitchcock mysteries				1	1	2
Hop on Pop	1	1				2
Mike Mulligan and his Steam Shovel		1			1	2
newspaper					2	2
Pippi Longstocking			2			2
Playboy			1	1		2
Scarry, R. (any		1		1		2
Stuart Little				2		2
Wizard of Oz			1	1		2

TABLE PQ1.

BOOKS NAMED BY PARENTS ON PARENT QUESTIONNAIRE, listed by grade of children

Kindergarten - 6 children

ABC - Seuss
Alexander
Babes in Toyland
Bennett Cerf's Riddles
Bible
Big Book of Fairy Tales
Big Things and Little Things
Burgess, Thornton
Cat in the Hat
Cat in the Hat Comes Back
Charlie the Horse
Charlotte's Web
Child's Garden of Verses **
Cinderella
Curious George
Dick Tracy
Dinny and Danny
Farmer Alfalfa
Forest Babies
Heidi
Hubert's Hair Raising Adventure
Jack and the Beanstalk
Jerome
Jettison's in Outer Space
Limericks
Madeline books
Magic book
Mother Goose *
My Farm Friends
Parents Magazine
Raggedy Ann *
Read Myself books: Come and See
Three of Us
Rudolph the Red Nosed Reindeer
Seuss
Sleeping Beauty
Snow White *
Soap Box Derby
Space Child's Mother Goose
Three Bears
Tiger Kitten Gets Lost
Where the Wild Things Are
Wild Life Baby Animals
Wild Swans
Witch Next Door
Wizard of Oz (abr.)
Yogi Bear

Grade I - 7 children

Are You My Mother ?
Around the World
Belling the Cat
Best Word Book Ever
Bible Stories *
Bookshelf for Boys and Girls
(University Society)
Bread and Jam for Frances
A Bug of Some Importance
Bunny Brown and Sister Sue
Caps for Sale
Cat in the Hat
Charlotte's Web
Chicken Soup with Rice *
Childcraft Stories
Cinderella *
Days of the Dinosaurs
Do You Know What I'm Going to Do
Next Saturday?
Dutch Twins
Fables *
Fairy Tales *
Fish that Swam Backwards
Flip
Great Stories for Young Readers
(Reader's Digest)
Grety Goofang
Hallowe'en Witch
Hansel and Gretel
Henry Huggins
Hitchcock Stories for Children
How the Grinch Stole Christmas *
Huck Finn
I Know an Old Lady
I Made a Line
Indian Two Feet and his Eagle
Feather
Lentil
Life Book on Desert
Life Nature Books

TABLE PQ1 (continued)

Grade I (continued)

Little Mermaid
Little Red Boot
McCloskey, Robert
Moonboy
Mother Goose
newspaper
New York Times: article on astronauts
Norman the Doorman
One Fish, Two Fish, Red Fish, Blue Fish
Paul Bunyan
Petey the Peanut Man
Poem from McCalls
Poetry - asstd.
Potter, Beatrix
Puss in Boots
Robin Hood
Seuss **
Snow White
Space book
Spiky the Hedgehog
Stuart Little *
Tell Me Cat
Theodore Turtle
365 Bedtime Stories
Tip
Tip and Mitten
What People Do All Day
When We Were Very Young
Wind in the Willows
Winnie the Pooh
Yertle the Turtle

Grade II - 10 children

Alice in Wonderland **
Andersen, H.C., collection
Animal Family - Jarrell
Animals Are Strange Creatures
Babar
Ballerina Bess
Behind the North Wind
Best Loved Story Poems
Bible Stories *
Big Show
Cat in the Hat
Charlie and the Chocolate Factory
Charlie Hits Pay Dirt
Charlotte's Web
Child's Garden of Verses *
Chitty Chitty Bang Bang *
Clarence Goes to Town
Comics
Court's World War II Books
Curious George
Dr. Dolittle
Edith and Bears
Edith books
Encyclopedia (children's)
Fairy Tales
Flower Power Poetry
Ghost of Windy Hill
Greek Heroes (Puffin book)
Hector Protector
Heidi *
Hobbit
How To Books
James and the Giant Peach
Juan and Juanita
Jungle Book
Lent, Blair books
Life Magazine article
Little Brown Bear
Little House
Little Princess
Little Toot
Madeline
Magic Finger
Magician's Nephew
Make Way for Ducklings
Mary Poppins
Milne, Golden Press Book of
Mother Goose
My Father's Dragon
On Your Toes, Suzy
Peter Rabbit
Pierre I Don't Care
Pinocchio
Pippi Longstocking
Pop Up Books

TABLE PQ1 (continued)

Grade II (continued)

Popeye
Puffin Book of Poetry
Punch and Judy
Rabbit, Skunk and Spooks
Riddle and the Czar
Riddle book
Secret Hideout
Secret Language
Seuss *
Story of Man
Stuart Little *
Three Bears *
Three Little Pigs
Through the Looking Glass
Tip
Tip and Mitten
Treasure Island
Ugly Duckling
War of the Worlds
Where the Wild Things Are
Winnie the Pooh *
Wizard of Oz *

Grade III - 7 children

Alice in Wonderland
Anderson's Fairy Tales
Bible
Boxcar Children
Cautionary Tales
Charlie and the Chocolate Factory
Charlie Brown *
Charlotte's Web *
Comics ***
Dr. Dolittle books
Ferdinand the Bull
First Step to the Future
Friendly Dolphins
Good Llama
Happy Hollister series
Heidi
Helen Keller
Heroes of the Bible
Hobbit
Evergreen Magazine
Lear: Large Book of Children's Poems
Macaroon
Make Way for Ducklings
Mary Poppins
Mike Mulligan and his Steam Shovel
Now We Are Six *
Peanuts
Peterkin Papers
Potter, Beatrix, stories
Practical Cats: T. S. Eliot
Ribsy
Seuss *
Silly Book
Space Books
Spartan Boy
Sports Illustrated
Sports pages in newspaper
Story of Ping
Stuart Little *
Swiss Family Robinson
Through the Looking Glass
Uncle Wiggily
When We Were Very Young *
Whitman's Find Out
Wilder, L. I. books
Winnie the Pooh *

Grade IV - 6 children

Ads
Almanacs
Anne of Green Gables
Astronomy books
Babar books
Bible Stories
Bobbsey Twins
Borrowers
Chitty Chitty Bang Bang
D'Aulaire's Greek Myths
Dell Magazine (Disney)
Diary of a Real Boy
Dictionary articles
Dictionary of Music
Fifteen
Freddy series (Walter Brooks)
Golden Book of Poetry - Untermeyer
Grimm's Fairy Tales

TABLE PQ1 (continued)

Grade IV (continued)

Hardy Boys
House of Seven Gables
James and the Giant Peach
Joke books
Landmark Biography
Linda's Air Mail Letter
Little Women
Mad Magazine
Make Way for Ducklings
Magic books
McCloskey books
Milne
Mustang
Nature books
newspaper
Peanuts
Phantom Toll Booth
Playboy Magazine
Poetry - asstd.
Riddle books
Scholastic books
Science books
Sears Roebuck Catalog
Secret Garden
Seuss *
Tom Swift and Wizard Camera
Trudi and the Milch Cow
Wilder, L. I. books
Yellow pages - phone book

TABLE PQ2

Books named more than once on Parent Questionnaire, listed in order of frequency

Title	number of parents who named the books					
	K	1	2	3	4	total
Seuss (any)	3	8	3	2	2	18
Milne (any)		1	3	6	1	11
Bible, Bible Stories	1	2	2	2	1	8
Fairy Tales	1	2	2	1	1	7
Charlotte's Web	1	1	2	2		6
Stuart Little		2	2	2		6
Child's Garden of Verses (RLS)	3		2			5
Comics			1	4		5
Make Way for Ducklings		1	1	1	2	5
Alice in Wonderland			3	1		4
Heidi	1		2	1		4
newspaper		2		1	1	4
Winnie the Pooh			2	2		4
Cat in the Hat	1	1	1			3
Chitty Chitty Bang Bang			2		1	3
Cinderella	1	2				3
Mother Goose	2	1				3
Peter Rabbit		1	1	1		3
Snow White	2	1				3
Three Bears	1		2			3
Wizard of Oz	1		2			3

TABLE MBL 1.

Most Frequently checked books on Master Book List, listed in order of frequency

number of children who checked the book (out of 31)	Title	
28	McCloskey, R.	Make Way for Ducklings
28		Three Little Pigs
27	Milne, A. A.	Winnie the Pooh
27		Puss in Boots
27		The Three Bears
27	Adams, A.(illus)	The Ugly Duckling
26	Barrie, J.	Peter Pan
26	Rey, H. A.	Curious George
26	Seuss	Cat in the Hat
26	"	Cat in the Hat Comes Back
26	"	Green Eggs and Ham
26	"	One Fish, Two Fish, Red Fish, Blue Fish
25	Aesop	The Hare and the Tortoise
25	Carroll, L.	Alice in Wonderland
25	Fleming, I.	Chitty Chitty Bang Bang
25	Grimm	The Shoemaker and the Elves
25		Cinderella
24	Asbjornsen, P.	Three Billy Goats Gruff
24	Baum, L. F.	Wizard of Oz
24	Lamorisse, A.	The Red Balloon
24	Moore, C. C.	'Twas the Night Before Christmas
23	Burton, V.	Mike Mulligan and his Steam Shovel
23	Cooke, D. E.	The House that Jack Built
23	Dahl, R.	Charlie and the Chocolate Factory
23	Grimm	Sleeping Beauty
22	Rey, H. A.	Curious George Rides a Bike
22	Seuss	Hop on Pop
21	Adams, A.(illus)	The Shoemaker and the Elves
21	Andersen, H. C.	Thumbelina
21	Brunhoff, J. de	The Story of Babar
21	Kipling, R.	Jungle Book
21	Reed, P.	Mother Goose and Nursery Rhymes
21	White, E. B.	Charlotte's Web
20	Bemelmans, L.	Madeline
20	Bishop, C. H.	Five Chinese Brothers
20	Evans, K.	The Boy Who Cried Wolf
20	Haines, F.	Old Mother Goose
20	Seuss	Horton Hatches the Egg
20	Spyri, J.	Heidi
19	Lofting, H.	Story of Dr. Dolittle
19	Lopshire, R.	Put me in the Zoo
19	Rey, H. A.	Curious George Flies a Kite

TABLE TWI.

Books read and heard during tracked week, listed by grade of children

Kindergarten - 4 children

Books heard

Adventures of Buster Bear
Andersen, H. C., The Wild Swans
Animal Stories We Can Read
Bartholomew and the Oobleck
Bible Stories
Busy, Busy World
Curious George goes to the Hospital
Find the Constellations
Grimm: Snow White and Rose Red
Jerry at School
Kitten who thought he was a Mouse
Little Engine that Could
Lucky Pup
One fish, two fish, red fish, blue fish
101 Dalmations (Disney)
Plop, Plop, Ploppie
Snow White and the Seven Dwarfs (Disney)*
Stories that Never Grow Old - Piper
- Boy Who Cried Wolf
- Billy Goat Gruff
- Bremen-Town Musicians
- Hansel and Gretel
- Pied Piper of Hamelin
- Ugly Duckling

Tell me a True Story (Bible Stories)
Ten Little Monkeys
Three Bears
Tinker and Tanker
Tom and Jerry and the Toy Circus
Uncle Wiggily
Witch Next Door

Books read

Big Show
Comics:
- Betty and me
- Betty and Veronica
- Chili
- Jughead
- Little Archie
- Pep

Jack and Janet
Story of Peter Rabbit (Child Guidance Action book)
Little White House
Tip and Mitten
Up and Away
Wild Swans

Grade 1 - 6 children

Books heard

All About Us
Around the World with Ant and Bee
Henry and the Clubhouse
I am Going to the Ocean
Indian Twins
Little Black Sambo
Little Engine that Could
Little House in the Big Woods
Little Red Riding Hood
Little Witch
Lord's Prayer and Beatitudes
Mary Poppins
Merry Animal Tales
Mr. Popper's Penguins
Mother West Wind's Neighbors
Number Men
Peter Churchmouse
Plants, Animals and Us
Poems to Read Aloud
Roly-Poly Pudding
Secret Journey
Spiky the Hedgehog
Tale of Jemima Puddle Duck

Table TW1 (cont'd)

Grade 1, books heard, continued

Three Little Bunnies
Uncle Wiggily's Automobile
When we were very young
Winnie the Pooh *
Yertle the Turtle

Books read

All Through the Day
Bib
Case of the Dumb Bells
Come Along Every Day
Comics *
Cowboy Andy
Curious George
Everready Eddie
Frog and the Red Bird
Frog's Secret
Harold and the Purple Crayon
I Know a Secret
Jokes and Riddles
Katy no-Pocket
Little Red Boat
Mr. Pines' Mixed Up Signs
Mr. Popper's Penguins
Open Windows
Petey the Peanut Man
Petunia
Run Sheep Run
Tip and Mitten
Tom and Sam
Trouble with Spider
Two is a Team

Grade 2 - 8 children

Books heard

Andersen, H. C., The Snow Queen
Boston Globe articles
Hobbit
James and the Giant Peach
Life Magazine articles
Magician's Nephew
May Horses
Miss Hickory
New England Aquarium guide book
New York Times articles
Tales of the Greek Heroes
We Grow Up
Wren (The Story of Karen)

Books read

Amelia Bedelia
Andersen, H. C.: Tinder Box
Ugly Duckling
Big Golden Book of Poetry
Borrowers Aloft
Child's Garden of Verses
Comic books*
Compton's Encyclopedia
Daniel Boone
Eddie's Pay Dirt
Ellen Tebbits
Enormous Egg
Frog Prince
Find the Constellations
Go, Dog, Go
Grimm: Cat and Mouse in Partnership
Golden Bird
Goose Girl
Guess Who
Happy Birthday to You
Helen Keller
Highlights Magazine
Hurry Home, Candy
Kingdom Lost for a Drop of Honey
Kittens and Cats Book
Life Magaazine
Little Engine that Could
Little Prince

TABLE TW1 (cont'd)

Grade 2, books read, continued

Little White Horse
Little Women
Magic as a Hobby
Magic Map
Mr. Willowby's Christmas Tree
Myrtle Albertina's Secret
National Geographic
Newstime Funtime Book
Nutshell Library - Sendak
On the Run
On We Go
Peanuts books: Good Ol' Snoopy
Snoopy
Peter Rabbit
Pinocchio
Pippi Longstocking
Pop-up Animal Alphabet Book
Rabbit, Skunk and the Big Fight
Rabbit, Skunk and Spooks
Tom and Jerry Meet Mr. Fingers
'Twas the Night Before Christmas
Uncle Funny Bunny Book
We Grow Up
Why the Sun and the Moon Live in the Sky
Wizard of Oz
World Book Encyclopedia - article on Papier Mache

Grade 3 - 7 children

Books heard

Boston Globe comics
Jungle Book
Life Magazine
Lion, the Witch and the Wardrobe
Winnie the Pooh

Books read

Baseball Life of Mickey Mantle
Charlie and the Chocolate Factory
Comic books ****
Evergreen Review (one story)
Globe Sunday comics ****
Homer Price
Hubbles Bubble
Mad pocketbook: The Adventures of Cpt. Klotz
Peanuts - Charlie Brown book
Pippi Longstocking
Pro-Football Heroes
Sneetches
Sports Illustrated
Swiss Family Robinson
Tales from Moominvalley
Uncle Funny Bunny
Wild Boy
Yertle the Turtle

Grade 4 - 5 children

Books heard

Adventures of the Speckled Band (Sherlock Holmes)
Frog Prince
Gnomobile

Books read

Abe Lincoln Gets his Chance
Always Growing
Beatles Yellow Submarine
Bible Stories
Born Free
Crictor

TABLE TW1 (cont'd)

Grade 4, books read, continued

Encyclopedia Brown gets his Man
Encyclopedia Brown Strikes Again
First Bows and Arrows
First Days of the World
First Settlers
Frederick Douglas Fights for Freedom
Ghostly Trio
Gone is Gone
Grandfather's Diary
Hardy Boys (several in series)
Helen Keller's Teacher
High Roads
Highlights
Hitchcock mystery series:
Secret of Skeleton Island
Look Magazine
Magic Tricks
Mad comics
Mr. Popper's Penguins
Mysterious Schoolmaster
Mystery of the Witches' Bridge
newspaper *
Peanuts: Here Comes Snoopy
Let's Face it, Charlie Brown
Snoopy
Slide, Charlie Brown, Slide
Pipers Ghost
Rapunzel *
Sea Star
Story of Dr. Dolittle
Superstitious? Here's Why!
Weekly Reader

	Huck	Reading gr scores		Reading Indexes		
	n=36	voc n=28	compr n=28	a n=36	b n=36	c n=36
Child Quest.-bks named:						
total #	.500 (.001)	.391 (.020)	.496 (.004)	.519 (.001)	.522 (.001)	.839 (.001)
wtd (1-5) total	.521 (.001)	.466 (.006)	.575 (.001)	.560 (.001)	.563 (.001)	.875 (.001)
mean level (1-5)	.599 (.001)	.582 (.001)	.605 (.001)	.712 (.001)	.717 (.001)	.579 (.001)
# at top level	.473 (.002)	.322 (.048)	.333 (.042)	.541 (.001)	.549 (.001)	.487 (.001)
Parent Quest.-bks named:						
total #	.068 (.346)	.081 (.340)	.181 (.178)	.396 (.013)	.359 (.016)	.081 (.320)
wtd (1-5) total	.392 (.009)	.307 (.056)	.405 (.016)	.700 (.001)	.697 (.001)	.370 (.013)
mean level (1-5)	.577 (.001)	.637 (.001)	.658 (.001)	.744 (.001)	.749 (.001)	.541 (.001)
# at top level	.270 (.055)	.055 (.391)	.079 (.345)	.449 (.003)	.456 (.003)	.115 (.253)
Master Bk List-bks checked:						
total #	.571 (.001)	.218 (.133)	.294 (.065)	.759 (.001)	.757 (.001)	.415 (.006)
wtd (1-5) total	.591 (.001)	.230 (.120)	.300 (.061)	.780 (.001)	.779 (.001)	.402 (.008)
mean level (1-5)	.357 (.016)	.124 (.264)	.099 (.308)	.392 (.009)	.392 (.009)	.116 (.250)
# at top level	.564 (.001)	.252 (.098)	.285 (.071)	.714 (.001)	.713 (.001)	.333 (.024)
wds read-tracked week:						
total #	.397 (.008)	.393 (.019)	.535 (.002)	.753 (.001)	.741 (.001)	.640 (.001)
wtd (1-17) total	.372 (.013)	.341 (.038)	.477 (.005)	.754 (.001)	.744 (.001)	.602 (.001)
mean level (1-17)	.546 (.001)	.129 (.163)	.217 (.134)	.659 (.001)	.664 (.001)	.454 (.003)
# at top 2 levels	.184 (.141)	.050 (.400)	.153 (.219)	.538 (.001)	.534 (.001)	.188 (.135)
wds heard - tracked week:						
total #	-.276 (.051)	-.327 (.045)	-.271 (.082)	-.139 (.210)	-.141 (.207)	-.264 (.060)
wtd (1-17) total	-.184 (.141)	-.181 (.178)	-.105 (.297)	-.003 (.494)	-.004 (.491)	-.092 (.296)
mean level (1-17)	.121 (.241)	-.017 (.465)	.135 (.247)	.273 (.054)	.273 (.054)	.244 (.075)
# at top 2 levels	.086 (.310)	.023 (.453)	.046 (.408)	.210 (.110)	.204 (.116)	.155 (.183)

Table COR1. Product moment correlations of detailed reading measures

	Stages n=36		Stages n=36
Child Quest. -bks named:		**wds read - tracked week:**	
total #	.397 (.001)	total #	.371 (.001)
wtd (1-5) total	.445 (.001)	wtd (1-17) total	.365 (.001)
mean level (1-5)	.410 (.001)	mean level (1-17)	.299 (.005)
# at top level	.257 (014)	# at top 2 levels	.348 (.001)
Parent Quest. - bks named:		**wds heard - tracked week:**	
total #	.050 (.335)	total #	-.232 (.023)
wtd total (1-5)	.274 (.009)	wtd (1-17) total	-.224 (.027)
mean level (1-5)	.409 (.001)	mean level (1-17)	-.104 (.187)
# at top level	.057 (.313)	# at top 2 levels	.023 (.422)
Master Bk List-bks checked:		**Child Questionnaire:**	
total #	.332 (.002)	numerical score	.327 (.002)
wtd (1-5) total	.338 (.002)	# yes answers	.067 (.284)
mean level (1-5)	.351 (.001)	**Parent Questionnaire:**	
# at top level	.328 (.002)	numerical score	.258 (.013)
Huck Inventory:	.505 (.001)	# yes answers	-.046 (.284)
Reading index (a):	.375 (.001)	Reading gr score, vocab:	.344 (.005)
" (b):	.389 (.001)	Reading gr score, compr:	.390 (.002)
" (c):	.550 (.001)		

Table COR2. Kendall rank order correlations of detailed reading measures with linguistic stages

	Linguistic Stage n=36
IQ	
Full scale	.631 (.001)
Verbal scale	.525 (.001)
Performance scale	.474 (.001)
Information subtest	.348 (.001)
Comprehension subtest	.387 (.001)
Vocabulary subtest	.352 (.001)
Grade in school	.513 (.001)
Age	.493 (.001)
SES	.257 (.014)

Table COR3. Kendall rank order correlations of non-reading measures with linguistic stages

MASTER BOOK LIST

This list of children's books was left in each home for the children to identify those books that they were familiar with, either from reading or listening. The original Master Book List contained over 400 titles. Only those books checked by 3 or more children are listed here.

FICTION

A. Easy Readers

total	K	1	2	3	4		
5		2	1	1	1	Barber, M.	The Funny Old Man and the Funny Old Woman
9	1	1	2	4	1	Berenstain, S.	The Big Honey Hunt
3			1		2	Bonsall, C.	Tell Me Some More
5			3	1	1	"	Who's A Pest
3		2	1			Blomquist, D.	Daddy is Home
9			3	4	2	Cerf, B.	Bennett Cerf's Book of Laughs
13	3	2	2	4	2	"	Bennett Cerf's Book of Riddles
23	2	4	7	5	5	Cooke, D. E.	The House that Jack Built
14	1	3	3	3	4	Eastman, P. D.	Are You My Mother?
18	1	3	4	6	4	"	Go, Dog, Go!
10	1	1	3	1	4		Sam and the Firefly
10	1	2	1	4	2	Elkin, B.	The King's Wish and Other Stories
4		2	1		1	"	The Big Jump
10		3	1	4	2	Farley, W.	Little Black, A Pony
10		4	3	1	2	Galdone, P.	The Old Woman and Her Pig
3		1	1		1	Grice, M.	One, Two, Three, Four
7			1	3	3	Guilfoile, E.	Nobody Listens to Andrew
20	2	4	6	4	4	Haines, F.	Old Mother Goose
3		1	1	1		Hall, W.	Captain Murphy's Tugboat
3				1	2	Hawkins, G. S.	The Sun and its Planets
16	3		5	5	3	Hoff, Syd	Danny and the Dinosaur
4			1	1	2	"	Oliver
16		1	4	6	5	Holland, M.	A Big Ball of String
4			1	1	2	Hurd, E.	No Funny Business
3		1			2	Johnson, J.	Long Ago in Colonial Days
19	1	4	5	5	4	Lopshire, R.	Put Me in the Zoo
12		4	2	3	3	LeSieg, T.	Ten Apples Up on Top
3		1	1		1	Lenski, L.	Papa Small
16	1	1	6	5	3	McClintock, M.	A Fly Went By
6	1	1	1	3		McKie, R.	Snow
9		2	2	2	3	Minarik, E.	Father Bear Comes Home
14	1	2	4	4	3	"	Little Bear
10			4	3	3	"	Little Bear's Friend
10		1	3	3	3	"	Little Bear's Visit
9			5	2	2	Myrick, M.	The Secret Three
3	2				1	Palmer, H.	A Fish Cut of Water
7			1	5	1	"	I was Kissed by a Seal at the Zoo
8	1		1	4	2	Phleger, F.	The Whales Go By
16	1	3	4	3	5	Rey, H. A.	Curious George Learns the Alphabet
4		1		2	1	Selsam, M.	Plenty of Fish

total	K	1	2	3	4		
26	2	5	7	7	5	Seuss, Dr.	The Cat in the Hat
26	3	4	7	7	5	"	The Cat in the Hat Comes Back
26	2	5	7	7	5	"	Green Eggs and Ham
22	1	4	5	7	5	"	Hop on Pop
26	3	5	6	7	5	"	One Fish, Two Fish, Red Fish, Blue Fish
8		3		3	2	Vreeken, E.	The Boy who would not Say his Name
3			3			Wing, H. R.	What is Big?
5			1	2	2	Zion, Gene	Harry and the Lady Next Door

B. Miscellaneous

21	2	4	8	3	4	Adams, A. (illus.)	The Shoemaker and the Elves
27	3	6	7	6	5	"	The Ugly Duckling
15	1	4	4	3	3	Aesop	Aesop's Fables
25	2	5	6	7	5	"	The Hare and the Tortoise
11	1		5	4	1	Andersen, H. C.	The Emperor and the Nightingale
17	3	2	6	4	2	"	Fairy Tales
7	2		3		2	"	The Steadfast Tin Soldier
21	3	3	5	6	4	"	Thumbelina
12		1	5	5	1	Anderson, C. W.	Billy and Blaze
6			2	3	1	"	Blaze and the Gypsies
8		2	2	3	1	"	Blaze Finds the Trail
6			3	1	2	Andizzone, E.	Little Tim and the Brave Sea Captain
6		3	1	1	1	Anglund, J. W.	The Birthday Book
8		2	4	1	1	"	Love is a Special Way of Feeling
6		2	2		2	"	Nibble, Nibble, Mousekin
25	2	4	8	6	5	Asbjornsen, P. C.	The Three Billy Goats Gruff
12		2	2	3	5	Atwater, R. F.	Mr. Popper's Penguins
26	3	5	7	6	5	Barrie, J.	Peter Pan
24	3	4	7	5	5	Baum, L. F.	Wizard of Oz
13	2	1	5	2	3	"	Wizard of Oz and the Land of Oz
20	2	2	5	6	5	Bemelmans, L	Madeline
10		1	5	2	2	"	Madeline and the Bad Hat
10			5	4	1	"	Madeline and the Gypsies
13		4	4	2	3	"	Madeline in London
14		2	4	5	3	"	Madeline's Rescue
4				1	3	Benchley, N.	Oscar Otter
20	1	2	8	5	4	Bishop, C. H.	Five Chinese Brothers
6			3	2	1	Bond, M.	A Bear Called Paddington
7			3	4		Bontemps, A.	The Fast Sooner Hound
10		2	3	3	2	Brooke, L. (ed.)	Golden Goose Book
7		1	3	2	1	Brooke, L.	Johnny Crow's Garden
27	3	5	8	7	4	"	Story of the Three Bears
28	3	5	8	7	5	"	Story of the Three Little Pigs
25	3	5	7	5	5	Brown, Marcia	Cinderella
14	2	2	5	3	2	"	Stone Soup
3	1		1		1	"	Once a Mouse
5		1	2	1	1	Brown, M. W.	Goodnight, Moon

Master Book List, Continued

total	K	1	2	3	4		
21	2	4	6	6	3	Brunhoff, J. de	The Story of Babar
4		2			2	Bulla (series) "	Riding the Pony Express
6		3	1		2	"	The Secret Valley
9	1	2	2	4		Burgess, T.	Uncle Remus
7		1	3	2	1	Burton, V. L.	The Little House
23	2	5	6	6	4	"	Mike Mulligan and his Steam Shovel
4			2	1	1	Cameron, P.	I Can't, Said the Ant
25	1	5	8	6	5	Carroll, L.	Alice in Wonderland
4		1	1	2		Carson, H.	Peter and the Moon Trip
10		2	2	5	1	Cerf, B.	Pop-Up Books
7		3	2	1	1	Chandler, E.	Cowboy Sam
3		1	1		1	"	Cowboy Sam and the Rustlers
5		1	1	3		Cleary, B.	Eddie's Green Thumb
15		3	4	3	5	"	Henry Huggins
4			1	2	1	Cooney, B. (ed.)	Chanticleer and the Fox
3			1	1	1	"	The Courtship, Merry Marriage, and Feast of Cock Robin and Jenny Wren
23		2	9	7	5	Dahl, R.	Charlie and the Chocolate Factory
11			1	5	5	"	James and the Giant Peach
13	1	1	3	3	5	Daugherty, J.	Andy and the Lion
5		1		3	1	DeJong, M.	The Last Little Cat
7		1	4	1	1	DeRegniers, B. S.	May I Bring a Friend?
3		1	1	1		"	Snow Party
7		1	2	2	2	Dodge, M.	Hans Brinker
6			5	1		Duvoisin, R.	Petunia
3			2	1		"	Petunia Takes a Trip
3			2		1	Ets, M. H.	In the Forest
20	2	5	6	5	2	Evans, K.	The Boy Who Cried Wolf
14	1	4	3	3	3	"	The Man, the Boy and the Donkey
4	1	1	1		1	Fatio, L.	The Happy Lion
27	3	5	8	6	5	Fischer, H.	Puss In Boots
14	2	4	4	2	2	"	The Traveling Musicians
7			3	1	3	Fitzhugh, S.	Harriet the Spy
4		1	1	1	1	Flack, M.	Angus
4		2	1		1	"	Angus and the Cat
4		1	1	1	1	"	Angus and the Ducks
18	1	4	6	4	3	"	The Story about Ping
25	1	4	9	6	5	Fleming, I.	Chitty Chitty Bang-Bang
14		1	5	6	2	Ford, M.	Baba Yaga Books (any one)
3				3		Fritz, J.	How to Read a Rabbit
16		4	4	6	2	Gag, W.	Millions of Cats
6		2	2	1	1	Godden, R.	Mouse House
14		3	5	3	3	Grahame, K.	The Wind in the Willows
5		1	2		2	Gramatky, H.	Hercules
10	1	1	2	4	2	Grimm Brothers	Grimm's Fairy Tales
3			2		1	Grimm Brothers (and F. Hoffman and Adams)	The Seven Ravens
25	2	4	9	5	5	"	The Shoemaker and the Elves
23	1	3	9	5	5	"	Sleeping Beauty
12	1	2	4	2	3	"	The Wolf and the Seven Little Kids

Master Book List, Continued

total	K	1	2	3	4		
13		3	4	6		Hader, B.	The Big Snow
5	1	1	1	2		Harris, J.	Uncle Remus: His Songs and Sayings
4		2	2			Hoban, R. R.	Bedtime for Frances
6		2	1	2	1	Joslin, S.	There is a Dragon in My Bed
5		1	3	1		Keats, E. J.	Peter's Chair
7		1	3	2	1	"	The Snowy Day
12		1	6	3	2	"	Whistle for Willie
14	1	2	5	2	4	Kent, R.	Paul Bunyan
21	2	4	6	5	4	Kipling, R.	Jungle Book
13		1	4	6	2	"	Just So Stories
3		2		1		Krauss, R.	The Happy Day
5	1	1	1	2		Kunhardt, D.	Pat the Bunny
5			2	2	1	LaFontaine, B.	The Lion and the Rat
4			1	2	1	"	The North Wind and the Sun
24	1	4	8	6	5	Lamorisse, A.	The Red Balloon
11		1	2	5	3	Langstaff, J.	Frog Went a Courtin'
6		1	2	2	1	Lauber, P.	The Friendly Dolphins
6			3	2	1	Lewis, C. S.	The Lion, the Witch and the Wardrobe
12		2	6	4		Lindman, M.	Snip, Snap, and Snurr and the Red Shoes
8			3	4	1	Lionni, L.	Inch by Inch
3			2		1	"	Swimmy
4		1	1	1	1	Lofting, H.	Dr. Dolittle and the Secret Lake
6			2	2	2	"	Dr. Dolittle's Garden
4		1	1	1	1	"	Dr. Dolittle's Post Office
19	2	4	7	5	1	"	The Story of Dr. Dolittle
14		1	5	4	4	"	The Voyages of Dr. Dolittle
4			2	2		Mason, M.	Caroline and Her Kettle Named Maud
10		1	7	1	1	McCloskey, R.	Blueberries for Sal
12		3	4	3	2	"	Lentil
28	2	6	9	6	5	"	Make Way for Ducklings
11		1	5	2	3	"	One Morning in Maine
5			1	4		"	Rabbit Hill
4			1	2	1	"	Time of Wonder
5			2	2	1	MacDonald, G.	The Little Island
3			1	1	1	McGregor, W.	Miss Pickerell Goes to Mars
27	3	6	8	5	5	Milne, A. A.	Winnie the Pooh
16	1	3	5	4	3	"	The House at Pooh Corner
4		1		3		Moore, L.	Everything Happens to Stuey
7	1	3		1	2	Munari, B.	The Birthday Present
10			5	1	4	Norton	The Borrowers
3	1		1		1	Quigley, L.	Three Blind Men and the Elephant
26	1	4	9	7	5	Rey, H. A.	Curious George
19	1	3	4	7	4	"	Curious George Flies a Kite
18	1	1	5	7	4	"	Curious George Gets a Medal
22	1	4	7	6	4	"	Curious George Rides a Bike
3			2		1	Sendak, M.	Hector Protector
7			3	2	2	"	Higglety-Pigglety Pop
14		1	6	5	2	"	Where the Wild Things Are

Master Book List, Continued

total	K	1	2	3	4		
18	1	2	5	6	4	Seuss, Dr.	The 5000 Hats of Bartholomew Cubbins
20	3	3	7	4	3	"	Horton Hatches the Egg
13	1	3	3	4	2	"	Horton Hears a Who
14	2	1	4	4	3	"	If I Ran the Circus
15		3	2	5	5	"	If I Ran the Zoo
16	1	3	5	3	4	Slobodkina, E.	Caps for Sale
3			1	1	1	Slobodkin	Under the Apple Tree
20	2	4	7	4	3	Spyri, J.	Heidi
7		1	1	3	2	Titus, E.	Anatole
8		1	1	4	2	"	Anatole Over Paris
5		1	1	2	1	Tresselt, A.	White Snow, Bright Snow
11		2	4	2	3	Twain, M.	Adventures of Huckleberry Finn
12		2	4	3	3	"	Adventures of Tom Sawyer
21	1	2	9	6	3	White, E. B.	Charlotte's Web
18		3	7	5	3	"	Stuart Little
4		1	2	1		Williams and Abrashkin	Danny Dunn and the Homework Machine (series) (any one)
3			3			Wilde, O.	The Selfish Giant
3			2		1	Wilder, L.	Farmer Boy
11		3	2	4	2	"	Little House in the Big Woods
8			2	4	2	"	Little House on the Prairie
4			1	2	1	"	On the Banks of Plum Creek
15		4	4	5	2	Zion, G.	Harry, the Dirty Dog
8			2	5	1	"	No Roses for Harry

POETRY

13	1	2	4	3	3	Milne, A. A.	Now We Are Six
10	1	1	3	3	2	"	When We Were Very Young
24	3	2	9	6	4	Moore, C. C.	T'was the Night Before Christmas
21	3	2	6	5	5	Reed, P.	Mother Goose and Nursery Rhymes
14	3	1	7	3		Stevenson, R. L.	Child's Garden of Verses

FACTUAL

A. Science and Nature

4		1	1	2		Blough, G.	Discovering Dinosaurs
3			1	2		Bridges, W.	Zoo Babies
3		1	1	1		First Books Series	First Book of Bees
8	1	1	1	2	3	Freeman, M.	You Will Go to the Moon
5		1	1		3	Gans, R.	Icebergs
3		1	1		1	Garelick, M.	What's Inside
3			1	2		Goudey, A. E.	Here Come the Whales
3		1	1		1	"	The Day We Saw the Sun Come Up
3		1	1		1	Gruenberg, S.	The Wonderful Story of How You Were Born
3		1	1	1		Hogner, D.	Frogs and Polliwogs
3			1		2	Hough	Great Days of Whaling
5		3	1	1		Ipcar, D.	The Wonderful Egg
3			1	1	1	Larrick, N.	Junior Science Book of Icebergs and Glaciers

Master Book List, Continued

total	K	1	2	3	4		
4			1	1	2	Lewis, C.	When I Go to the Moon
3			2	1		Lionni, L.	Inch by Inch
6			2	2	2	Schneider, H.	How Big is Big?
3		1		1	1	Selsam, M.	Gregg's Microscope
6		2		3	1	The True Book of:	Dinosaurs
3		1		1	1	"	Pebbles and Shells
3			1		2	Van Loon	The Story of Mankind

B. Biographies

6		1	3		2	Daugherty, J.	Daniel Boone
5			1	1	3	Lee, B.	Boy's Life of John F. Kennedy

C. Social Studies

5		1	1	2	1	Moyers	Famous Indian Tribes

MAGAZINES

4			1	1	2	National Geographic School Bulletin
13		2	7	3	1	Jack and Jill
5	1		2	1	1	Ranger Rick
4		1	1	1	1	National Wildlife
14		2	8	2	2	Highlights

READ ALOUDS

26	3	5	7	6	5	Barrie, J.	Peter Pan
24	3	4	7	5	5	Baum, L.	The Wizard of Oz
13	2	1	5	2	3	"	The Wizard of Oz and the Land of Oz
25	1	5	8	6	5	Carroll, L.	Alice in Wonderland
23		2	9	7	5	Dahl, R.	Charlie and the Chocolate Factory
11			3	5	5	"	James and the Giant Peach
7		1	2	2	2	Dodge, M.	Hans Brinker
25	1	4	9	6	5	Fleming, I.	Chitty Chitty Bang-Bang
14		3	5	3	3	Grahame, K.	The Wind in the Willows
14	1	2	5	2	4	Kent, R.	Paul Bunyan
21	2	4	6	5	4	Kipling, R.	Jungle Book
13		1	4	6	2	"	Just So Stories
24	2	5	8	5	4	Lofting, H.	Dr. Dolittle Books (any one)
17		5	3	5	4	Milne, A. A.	Christopher Robin
5			1	4		McCloskey, R.	Rabbit Hill
20	2	4	7	4	3	Spyri, J.	Heidi
7			3	2	2	Sendak, M.	Higglety-pigglety Pop
21	1	2	9	6	3	White, E. B.	Charlotte's Web
18		3	7	5	3	"	Stuart Little
11		3	2	4	2	Wilder, L.	Little House in the Big Woods
8			2	4	2	"	Little House on the Prairie
3			2		1	"	Farmer Boy
4			1	2	1	"	On the Banks of Plum Creek