

\$3.00

EDITOR

ROBERT R. SEARS
Stanford University

ASSOCIATE EDITORS

EVE V. CLARK
Stanford University

JAMES E. YOUNISS
Catholic University of America

CONSULTING EDITORS

LOIS BLOOM
Columbia University

STANLEY COOPERSMITH
University of California, Davis

DAVID ELKIND
University of Rochester

LUCY R. FERGUSON
Michigan State University

JAMES J. GALLAGHER
University of North Carolina

ROCHEL GELMAN
University of Pennsylvania

JOHN W. HAGEN
University of Michigan

MARJORIE K. HONZIK
University of California, Berkeley

P. HERBERT LEIDERMAN
Stanford University

MICHAEL LEWIS
Educational Testing Service

ELEANOR E. MACCOBY
Stanford University

MICHAEL P. MARATOSOS
University of Minnesota

DANIEL N. OSHERSON
Stanford University

WILLIAM D. ROHWER
University of California, Berkeley

JACQUELINE S. SACHS
University of Connecticut

SANDRA SCARR-SALAPATEK
University of Minnesota

ALBERTA SIEGEL
Stanford University

ROBERT L. SPAULDING
California State University, San Jose

HAROLD W. STEVENSON
University of Michigan

MILDRED TEMPLIN
University of Minnesota

Monographs of the Society for Research in Child Development, one of three publications of the Society for Research in Child Development, is published at irregular intervals during the year by The University of Chicago Press. Subscription rate, U.S.A.: 1 year \$12.00. Other countries add \$1.00 for each year's subscription to cover postage. The price of individual *Monographs* varies. Reprinted volumes 1-27 available from Kraus Reprints, Route 100, Millwood, New York 10546. Volumes 28 to date available in microfilm from University Microfilms, 300 North Zeeb Road, Ann Arbor, Michigan 48106; in microfiche from J. S. Canner & Co., 49-65 Lansdowne Street, Boston, Massachusetts 02215. (See inside back cover for information on other journals published by the Society.)

Subscriptions are accepted on a calendar-year basis only.

Subscriptions, address changes, and business communications regarding publication should be sent to THE UNIVERSITY OF CHICAGO PRESS, 5801 Ellis Avenue, Chicago, Illinois 60637. Please give four weeks' notice when changing your address, giving both old and new addresses. Undelivered copies resulting from address changes will not be replaced; subscribers should notify the post office that they will guarantee forwarding postage. Other claims for undelivered copies must be made within four months of publication.

Membership communications and requests for permission to reprint should be addressed to DOROTHY H. EICHORN, Executive Officer, Society for Research in Child Development, 5801 Ellis Avenue, Chicago, Illinois 60637.

Third-class postage paid at Chicago, Illinois. © 1973 by the Society for Research in Child Development, Inc. All rights reserved. PRINTED IN U.S.A.
ISSN 0037-976X.

MONOGRAPHS OF THE
SOCIETY FOR RESEARCH IN
CHILD DEVELOPMENT

SERIAL NO. 152, VOL. 38, NO. 5
OCTOBER 1973



THE DEVELOPMENT OF COMMUNICATION SKILLS: MODIFICATIONS IN THE SPEECH OF YOUNG CHILDREN AS A FUNCTION OF LISTENER

MARILYN SHATZ
ROCHEL GELMAN

UNIVERSITY OF PENNSYLVANIA

ABSTRACT

SHATZ, MARILYN, and GELMAN, ROCHEL. The Development of Communication Skills: Modifications in the Speech of Young Children as a Function of Listener. *Monographs of the Society for Research in Child Development*, 1973, 38 (5, Serial No. 152).

This *Monograph* reports three studies of the 4-year-old's ability to adjust to a listener. In the first study (Study A) 16 Ss were pretested on modified versions of standard tests of "egocentrism." Following these, the children were asked first to tell an adult about a toy and then tell a 2-year-old about that toy. The eight Ss who had 2-year-old siblings were run on the toy task twice: once in an adult-sibling session, and once in an adult-non-sibling session. Finally, tapes were made of spontaneous conversations between the Ss and their mothers. As expected, the Ss performed poorly on the tests of "egocentrism." In contrast, Ss adjusted their speech production to their different listeners. Speech to 2-year-olds contained more short, simple utterances and more attentional utterances. The younger the 2-year-old, the greater was the observed speech adjustment. All children adjusted their speech whether or not they had younger siblings.

In Study B tapes of uncontrolled conversations of five 4-year-olds each talking to a 2-year-old and an adult were obtained. Analyses of speech adjustments revealed a pattern of results like those of Study A.

In Study C tapes of eight 4-year-olds talking to peers were collected and compared with the taped conversations with their mothers obtained in the first study. Analyses of the peer-directed versus adult-directed speech showed that, with respect to utterance length, the use of various constructions, and attentional utterances, peers were treated like adults. These results, combined with those of Study A, indicate that the 4-year-old adjusts his speech with regard to the changing capacities of different-aged listeners.

The results of these studies are discussed with regard to previous work on the preschooler's communication skills and the variety of listener-produced cues that may influence the 4-year-old's tendency to "talk down." The implications of speaker-listener interaction for the process of language acquisition are considered.

I. INTRODUCTION

The ability to adjust one's speech to a variety of listeners is a fundamental feature of communicative skill (Ervin-Tripp 1968; Flavell, Botkin, Foy, Wright, & Jarvis 1968; Hymes 1972; Piaget 1926).

Do 4-year-old children have this communicative ability? Investigators in the fields of cognitive development and sociolinguistics, working from different theoretical perspectives, propose opposite answers to this question. Piaget postulates that the preschool child is egocentric, that is, unable to take into account perspectives other than his own (Piaget 1926; Piaget & Inhelder 1956). Without the ability to consider the perspectives of others, the child cannot adjust his message to a listener. Hymes (1971) contends that, as a child acquires syntactic competence, he also learns how to use his language appropriately in social settings. Given that the 4-year-old's syntactic abilities are reasonably well developed (e.g., Brown 1973; McNall 1970; Menyuk 1963), some ability to adjust speech to a listener also should be evident by this age.

Several studies showing that young children are poor communicators have been taken as support for the Piagetian position. For example, in a study by Piaget (1926), children were required to reproduce for a peer a verbal explanation of a water tap or a syringe. The resulting communications by the 6-year-olds (the youngest Ss used) revealed that the children were unable to order their explanations properly or to indicate causal relationships in ways that insured comprehension by their listeners. Glucksberg, Krauss, and Weisberg (1966) reported that preschool children performed poorly when required to label one of several objects so that their listeners could identify it. That is, the children failed to provide distinctive labels for each of the objects. Similar findings are reviewed by Flavell et al. (1968).

These studies focused on the child's ability to label distinctive features or to provide ordered, causal statements. But providing appropriate labels for distinctive features demands better classification and vocabulary skills than most young children possess (Brown 1958; Inhelder & Piaget

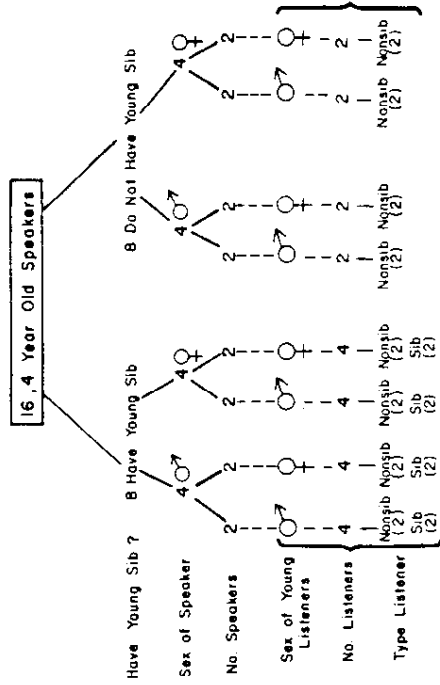


FIGURE 1.—Schematic of how 16 speakers were assigned to 24 adult-younger listener sessions.

months, with a mean age of 26 months. The mean age difference between speaker and younger listener was 26 months, with a range of 17–36 months.

PROCEDURE

One of two *E*s collected the data for each *S*.

In order to foster a natural, relaxed atmosphere during the experimental sessions, we took the following precautions to assure that participants were acquainted with each other before a session was run. The *E* made two visits, usually a week apart, to the homes of those *S*s not previously familiar with her. She brought simple toys with which she and the *S* played. If *S* did not know his younger listener-to-be well, arrangements were made for the younger child to be present at one of the preliminary play sessions. The *E* collected no data at these times.

The study itself consisted of three phases: (1) pretests, (2) toy task, and (3) taping of spontaneous speech. Phases 1 and 2 were conducted one right after the other, in either the *E*'s home (if the *S* was very familiar with it and comfortable there) or the *S*'s home. Phase 1 was administered only once, to all 16 *S*s. While there are 16 Phase 1 sessions, there are 24 Phase 2 sessions. The eight *S*s with siblings participated twice in Phase 2, once with a sibling and again with a nonsibling on another day; the order was counterbalanced.

Phase 1: pretests.—Experimenters whose studies show that young children have some ability to take the perspective of another stress the simplicity

II. STUDY A: SPEECH ABOUT A TOY TO 2-YEAR-OLDS AND ADULTS

GENERAL DESIGN

In addition to placing the listener variable in a topic-controlled setting, the design of Study A included two other features. First, half of the 4-year-old *S*s were the only or youngest children in the family. The other half had 2-year-old siblings. The variable of a younger sibling was included in order to assess the hypothesis that a 4-year-old child who uses shorter and simpler utterances to a 2-year-old merely imitates his parents' way of talking to his younger sibling. Children who had younger siblings were run twice, once with their sibling and once with an unrelated 2-year-old. This allowed us to assess the sibling variable in two ways. We compared children who had younger siblings with those who did not when both spoke to unrelated 2-year-olds. We also compared the way that children who had younger siblings talked to their sibling as opposed to an unrelated 2-year-old.

Second, sex of the 4-year-old and the younger listener was counterbalanced. However, in the cases where a 4-year-old spoke to both his sibling and a nonsibling, the nonsibling's sex was the same as the sex of the sibling. Availability of *S*s with younger siblings necessitated the decision not to counterbalance the sex of sibling and nonsibling. Figure 1 diagrams the sex and sibling speaker-listener relationships.

SUBJECTS

The *S*s were 16 children, 39–60 months of age, with a mean age of 52 months. Only one *S* was younger than 45 months. All *S*s were native English speakers from middle- to upper-middle-class professional families.

Others participating in the study were adults (two *E*s and parents of the *S*s) and younger children, all of whom had or will have English as their first language. The latter either were siblings of the *S*s or were from families similar to those of the *S*s. Age range of the younger children was 19–34

play with them. The S was given the following instructions: "_____ is coming soon. Do you think he'll like this toy? I don't think he's seen it before. When he comes, you tell him how to work it. You'll have to tell him and not just show him to make sure he really understands. Tell him so he can work it too." These instructions were repeated after the younger child arrived. The instructions were worded so that S would be more likely to interpret them as instructions to take the listener into account (cf. Flavell et al. 1968). Note that E was not asking S to "tell what you know about the workings of the toy," but rather "tell me (or some other listener) in such a way that I can do it too."

When the younger child arrived, the two children played undisturbed, although E and sometimes a mother usually remained in the room. If no conversation at all was occurring between the children, E prompted S with statements like, "Tell _____ how he can dump the marbles," or "Tell _____ where he should put his animals." The amount of prompting necessary varied greatly with Ss. When it became apparent that interest in the toy was flagging and that no further interactions with it were likely, the session was ended.

Phase 3: spontaneous speech.—The final phase of Study A was the collection of a 15-20-minute tape of each S in conversation with a parent. The parents made the tapes within a week of Phase 2. They were instructed to use the recorder at times when they and the child were occupied together by any natural, ordinary activity. The purpose of these tapes was the establishment of a baseline of uncontrolled speech production to adults for each S. Since the experimental design required the child to speak to an adult other than a parent about the toy, the tapes allow us to assess possible effects of the experimental setting.

PRETEST RESULTS

Ten of the 16 Ss passed at least one of the pretests. Of these Ss, only two passed both. There were six passes on the airplane task, a task which required the child to select a critical feature as a "hint" on at least one of the three test trials. And there were six passes on the perspective task, a task that required the child to coordinate and communicate spatial perspective. The percentage of Ss performing successfully on each task (37%) is comparable to the results of others who have also used simpler versions of "egocentrism" tasks with preschool-aged children (Selman 1971; Shantz & Watson 1971).

TOY TASK RESULTS

We present representative protocols to illustrate that Ss were task oriented when they talked to both an adult and a younger child:

J. K. to MOTHER ABOUT DUMPING STATION: You put it in here. [Question from mother.] And then push it all the way in, and then you get marbles out here. You'll need gas. It only has enough gas to go to the gas station. It backed in here. That's good. [Question from E.] You have to make it go back up here. Then you pick it up and it goes back in.

J. K. to YOUNGER CHILD ABOUT DUMPING STATION: I gave you it. You want to have something funny? Put the marbles in here. Put the marbles in here. I'll give you the marbles. Now pour them in here. Go up here. And pour them in here. Now we have to dump it. Dump it. No, not in here. Pour it in here. Four it in here, okay? That's funny. No, not like that. I'll do it. See, Sara?

A. S. to ADULT ABOUT ANK: That's the thing that they climb up when the storm. Here are all the animals. This is the little brother, dad-dad, right? Daddy. I want it to be the daddy. . . . [Remark from E and response to E by S.] They can't get in from the door, so you have to take this off. Wait, it's backwards. The first ones go in the very back, right? Where's the other giraffe? Here it is. Okay, now the piggies.

A. S. to YOUNGER CHILD ABOUT ANK: This is a black bird. You get the black bird. I get the white bird. . . . Don't put that in yet. Don't put that in there. They need some space. Now you put your giraffe in. Oh, I got both of the giraffes. No, don't. Don't put that there. This here. And I put mine here.

These protocols show that, to a large extent, Ss focused on the toy with both listeners.

Amount of Speech and Utterance Length Analyses

Method of speech analysis.—Our initial analyses of Ss' performance in the toy task involved comparisons of the total amount of speech and utterance lengths directed to different listeners. The speech sample to younger listeners consisted of those utterances directed to them in period 2 of the toy task. The speech sample to adults consisted of those utterances directed to E in period 1 plus any adult-directed utterances about the toy that the Ss happened to produce during period 2. Analyses of total amount of speech were based on a count of the number of utterances produced; utterance lengths were based on a count of words within an utterance.

Tape recordings of the toy conversations were transcribed initially by one of two individuals who were familiar with the speech of young children. They were instructed to (a) write down what they heard and punctuate as they would dictation; and (b) use rising and falling intonation patterns to mark utterance boundaries with a question mark or period—whether the utterance was a well-formed sentence, a conversational phrase, or an incomplete utterance. If they judged a section of speech to be completely unintelligible, they were to note it but not attempt to transcribe it. If a section of speech contained intelligible and unintelligible words, they were told to transcribe the intelligible section and indicate where possible the number of discrete but unintelligible "words" with a number.

Each tape was transcribed as soon as possible after the experimental session took place. When the transcription was complete, the E who ran the

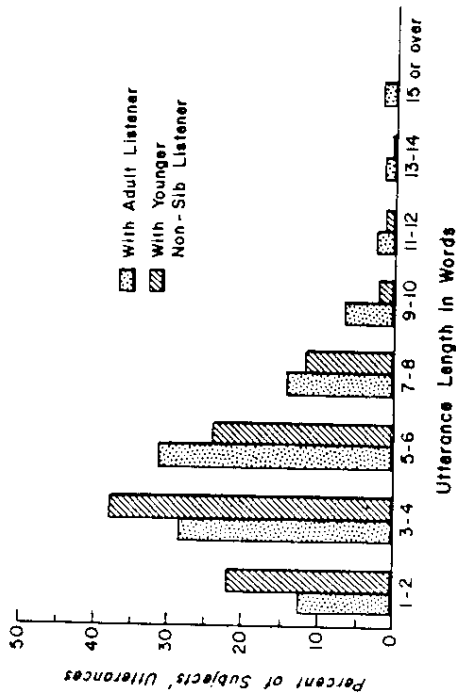


FIGURE 2.—Distribution of utterances of various lengths in 16 adult-non-sibling sessions.

Analyses of the two measures obtained in the eight adult-sibling sessions confirm the effect of listener reported above. Table 2 summarizes the

TABLE 2

MEASURE	LISTENER	
	Adult	Younger Sibling
Average amount	61.0	37.6
Mean MLU	6.2	4.7

* Each cell total is based on eight communication periods between speakers and listeners.

average amount and mean MLU results for the adult-sibling sessions. Figure 3 shows the distribution of utterance lengths. Two-way analyses of variance yielded significant F 's (1,6) of 9.08 and 15.25 for amount of speech and MLU, respectively. The sex of speaker \times listener interaction was significant in the amount analysis, $F(1,6) = 12.72$, but not the MLU analysis. The average longest utterance to adults was 19.6 as against 10.8 to younger siblings.³

³ Given that the Ss talked significantly more to adults than to younger children, it might be argued that the MLU effects are artifacts. The child might tend to increase the length of his utterances the longer he talks. Two kinds of analyses lead us to reject this argument. First, we equated the size of within-session sam-

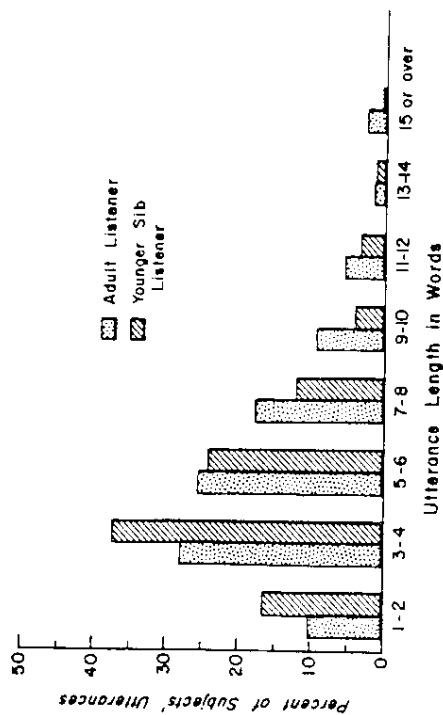


FIGURE 3.—Distribution of utterances of various lengths in eight adult-sibling sessions.

The data for individuals support the group effect. In 21 of 24 sessions, MLUs to younger children were shorter than to adults, and in 23 of 24 sessions the longest utterance produced by S was directed to the adult listener.

In summary, comparisons of MLU, distributions of utterance lengths, and average longest utterance show that 4-year-old children selectively varied their language production depending upon their listener. The following protocols from A. M. illustrate the tendency of Ss to use long utterances to their adult listener as opposed to short utterances to the child listener.

A. M. to ADULT: . . . You're supposed to put one of these persons in, see? Then one goes with the other little girl. And then the little boy. He's the little boy and he drives. And then they back up. And then the little girl has marbles. . . . [Questions from adult and responses from S.] And then the little girl falls out and then it goes backwards.

A. M. to YOUNGER CHILD: . . . Watch, Perry. Watch this. He's backing in here. Now he drives up. Look, Perry. Look here, Perry. Those are marbles, Perry. Put the men in here. Now I'll do it.

Sibling effects.—Table 3 shows the average amount of speech and ples to adult and younger listener by discarding the end of the longer sample. Analyses of variance on the equated sample MLUs still yielded significant listener effects in both the adult-non sibling and adult-sibling data. Second, we compared the adult versus child MLUs produced by the five Ss who directed at least as much if not more speech to the younger child. All of these Ss used shorter MLUs to the younger children. For this subset of Ss, the mean MLU to adults was 6.5 as opposed to 4.9 for younger children.

6. Predicate complements—"wh" complementizers: instances of sentential complements introduced by the interrogatives *what*, *how*, *when*, *why*, *who*, and *where* after the verb or the indirect object noun phrase of the main sentence. Included here were "wh" *to* and "wh" {noun/pronoun} constructions; e.g., "I'll show (you) *how to do it*" and "I'll show (you) *how I do it*."

7. "To" constructions: instances of *to* followed by a verb, except those following a "wh" complementizer as in category 6. This category includes noun and verb phrase complementation such as "It's hard *to do it*," "I'll try *to do it*," and "How do you start him *to talk*?" It also includes a set of utterances that are similar to the "to" complementizer constructions on the surface but could be described as "semi-auxiliaries." Examples are "I'm *going to do it*," "I *used to do it*." In such utterances *do* seems to function as the main verb, while *'m going to* and *used to* appear to be more like auxiliaries.⁸

Note that these "semi-auxiliaries" might have been separately classified. We have not done so because many of the "to" constructions produced by the children are difficult to assign uniquely to either a predicate complementation or "semi-auxiliary" category. We preferred not to impose a unique interpretation of their deep structure on them and instead established the broader category of "to" constructions.⁹

interesting issues, e.g., the classification of certain constructions as noun phrase or verb phrase complementation (see Rosenbaum 1967). Rosenbaum shows that analysis of the structure of English predicate complementation is a formidable task and gives evidence that our categorizations are not unreasonable, at least as a start.

⁸ Such verbal constructions, along with aspectuals like *begin*, *continue*, etc., defy neat grammatical categorization because they exhibit characteristics of both true auxiliaries and true lexical verbs (Garcia 1967; Joos 1964). With regard to *going to* and *used to*, note the rarity (but not impossibility) of occurrence with true modal auxiliaries:

- I can used to do it.
- I will be gonna do it.
- I may be going to do it.

True modal auxiliaries do not co-occur. As for shifting to a prenominal position in questions ("Can you do it?"), only a partial shift occurs with *be going to* ("Are you going to?") and *used to* follows the conventional treatment of a lexical verb ("Did he used to do it?"). For further discussion of modal auxiliaries, semi- or quasi-auxiliaries, and lexical verbs and their restrictions, see Chomsky (1957, 1965), Garcia (1967), and Jacobs and Rosenbaum (1968).

⁹ Consider "to" constructions with the verb *want*: there are clear instances in which *to* functions as a predicate complementizer, e.g., "I *want you to do this*." The case of "(You/I) *want to do this*" becomes more difficult to classify. It can be interpreted as an instance of predicate complementation with a deleted subject, e.g., "I *want (I) to do this*." However, the children did produce utterances like "Now, you *wanna do this*," where *wanna* had a *must*-like function in context.

8. Accessories: words or phrases that are set off by a pause at the beginning or end of an utterance and that supplement the main part of the utterance rather than form an integral part of it. These included such items as *yes*, . . . , *no*, . . . , and *right*, . . . , which Jespersen (1961) refers to as "inarticulate" or "partially articulate" sentences; . . . , *can't we?*, . . . , *do you?*, which are instances of tag questions (Brown & Hanlon 1970); and *hey*, . . . , *look*, . . . , *Mommy*, . . . , etc., defined below as attentionals.

Two individuals, working together, inspected every long utterance for each of these categories. Decisions about category assignment were made jointly. Every instance of a construction in any of these categories was counted. This was done separately for the adult-nonsibling sample and adult-sibling sample. Since both samples yield comparable conclusions, only the adult-nonsiblinging results are presented in full.

Findings.—Table 4 presents descriptive statistics summarizing the 4-year-olds' tendencies to use the various constructions in their production of long utterances. These tendencies are indexed in two ways. The first is a rate measure based on the *total sample* of long utterances produced by all Ss to each class of listener. The reciprocal rate of occurrence (*R*) was computed by dividing the total number of long utterances to a class of listener by the total number of instances of a given category to that class of listener. Thus, the reciprocal rate of occurrence shows the average number of long utterances occurring before an instance of a given category is found. For example, on the average, every 6.8 long utterances in the total sample to adults contained one instance of a coordinate construction. The second index involves the percentage of Ss who used a particular category to a given listener at least once. Since two Ss produced no long utterances to their younger nonsibling listeners, the N's represented in the adult and nonsibling percentages are 16 and 14, respectively.

A judgment that a given category was used selectively was based on both descriptive statistics. Rate differences had to reflect individual tendencies to use the particular category selectively, and vice versa. Whenever one measure was not corroborated by the other, we chose to interpret the data conservatively.

Three categories show no differential selection from linguistic repertoire as a function of listener. More than half the children used pronominal adjectives, "to" constructions, and accessories with both adult and younger listeners. The rates of occurrence for each of these categories reveal comparably frequent occurrences regardless of listener.

Such cases may be interpreted as auxiliary-like. The last example shows that *want to* often exhibits the phonological juncture which characterizes other auxiliary-like forms (e.g., *gonna* instead of *going to*, *wanna* instead of *want to*). This is further evidence for the position that such constructions may require a different treatment from predicate complements. Similar difficulties occur with verbs like *have* and *got*.

dependent selections in the total adult-nonsibling sample also did so in the subset of sessions involving older 2-year-old listeners.¹⁰

Tables 4 and 5 do suggest some tendency for 4-year-olds to use different constructions with older 2-year-olds as opposed to younger ones. When subordinate conjunctions and predicate complements with "that" and "wh" complementizers did occur with 2-year-old listeners, they occurred exclusively in the speech addressed to children who were 28 months or older.

The Use of Attentional Utterances

Adults have better attentional capacities than 2-year-olds. If the 4-year-old can take account of the differences in these capacities, he should vary the utterances he uses to get and hold attention depending on his listener. *Method of speech analysis.*—The sample analyzed here was the data from the 16 adult-nonsibling sessions. The 4-year-olds used a variety of attention-getters and attention-holders. These included *hey*, *see*, *look* (*it*), *watch*, *no* (when used to stop the listener's action, see Klima & Bellugi, Klima 1971), and listener's name as attention-getters; and *now* and *okay* when used as attention-holders as opposed to fillers. Whenever an utterance included one or more such words used in these ways, the utterance was scored as an attentional utterance.

To determine whether different types of attentional words were used with different listeners, we counted and categorized only the first attentional word in each attentional utterance. The categories of attentional words were: (1) *hey*; (2) *names*, including *Mommy*; (3) *see*, *look*, and *watch*; (4) *no*; and (5) *now* and *okay*.

Findings.—Of the S's utterances to adults in the 16 adult-nonsibling sessions, 4% were attentional. In contrast, 21% of the S's utterances to younger listeners were of this type. A sign test revealed that this difference was significant. The age of the younger listener also significantly affected the production rate of attentional utterances: 18% of all utterances addressed to older 2-year-olds were attentional while 26% of utterances spoken to younger 2-year-olds contained at least one attentional word ($\chi^2_1 = 4.95$).

The Ss tended to select particular types of attentional words for use with particular listeners. Table 6 gives the percentages of various types of attentional words used to the three groups of different-aged listeners. The younger the listener, the more our speakers used visual attention-getters like *see*, *look*, and *watch*. With an older listener, the 4-year-olds used more attention-holders and *hey*, which seemed to be a way of saying, "Here's something interesting." The following excerpts from one child's protocol illustrates the tendency to select different attentional words for different listeners:

¹⁰ Note in table 5 a rate difference in category 6 which appears to favor the younger listener. This difference is attributable to one child.

TABLE 6

PERCENTAGE OF TYPE OF ATTENTIONAL WORDS USED WITH ADULT, OLDER 2-YEAR-OLD, AND YOUNGER 2-YEAR-OLD LISTENERS^a

ATTENTIONAL WORD	LISTENER	
	Adult	Younger 2-Year-Old
Hey	33	2
Names	26	19
See, look, and watch	17	38
No	9	65
Now, O.K.	15	11
		4

^a Based on a total number of 1,083 utterances produced by 16 speakers to 16 adults, 340 utterances by seven speakers to seven older 2-year-olds, and 205 utterances by nine speakers to nine younger 2-year-olds.

D. H. TO ADULT: Hey, there are two gray foxes. . . Hey, here's a one. . .
 Hey, here's two cows.
 D. H. TO CHILD UNDER 28 MONTHS OF AGE: Lookit, Perry. Hi, Perry.
 Lookal. . . See the elephant? See?

SPONTANEOUS TAPE RESULTS

To determine whether the experimental setting generally affected our Ss, we compared the MLUs based on the transcripts of the spontaneous parent-child tapes with the MLUs based on the adult-directed speech produced in the sessions with the toy. For the purpose of this comparison, the MLUs resulting from the first toy session in which a S spoke with an adult were used. Average MLUs for the spontaneous situation and toy task sessions were 6.2 and 5.7, respectively. A two-way analysis of variance where the main variables were sex and spontaneous versus experimental setting showed no significant effects. The average longest utterance produced to adults in each of the sessions was 17.7. Thus, the experimental situation did not appear to distort speech production to adults.

SUMMARY OF RESULTS

The pretests reveal that, on the basis of traditional tests of egocentrism, our Ss performed no better than expected. Each pretest was passed by only 38% of the children; only 13% passed both tests. In contrast, the results of the toy task show that all of the children were able to take their listeners into account to some extent. All 16 speakers reduced their utterance lengths to younger children in at least one session. The long utterance and attentional utterance analyses confirm the results of the utterance length analyses. The tendency to treat the two classes of listener differently was not

to the child and to avoid asking *yes-no* questions. For the child-younger child tapes, they were told to avoid entering the conversation even when they had to stay in the room during the taping. The methods of data analysis for all reported measures are the same as those of Study A.

RESULTS

The tapes obtained by the mothers varied in length from 15 to 45 minutes. Since the length of speech sessions varied so widely, no statement can be made about amount of speech to adult as opposed to younger child listener. The average MLUs based on 331 utterances to mother and 570 utterances to 2-year-olds were 7.0 and 4.6, respectively. All five Ss produced shorter MLUs to 2-year-olds. The MLU listener effect is significant as assessed by a correlated *t* test ($t_4 = 5.60$).

The distribution of utterances of various lengths to both types of listener was comparable to that shown in figures 2 and 3 and is therefore not illustrated. Seventy-three percent of the total utterances to adults exceeded four words in length, while 53% of those addressed to younger listeners were longer than four words.

The overall long utterances to adults differed from those to 2-year-olds in that they included more coordinate constructions and subordinate conjunctions: the reciprocal rates at which coordinate constructions were used with adults and 2-year-olds were 3.9 and 13.8, respectively. The *U*'s for subordinate conjunctions were 34.6 and 101.0, respectively. In addition, the children used predicate complements—"wh" complementizers more frequently to adults ($U = 11.5$ to adults, 21.6 to younger children). In the first two of these categories, individual tendencies to use them differentially supported the overall rate differences. The tendencies to use the constructions represented in categories 3, 4, 5, 7, and 8 were comparable for both classes of listeners.

The results of long utterance analyses support the results of Study A with one exception. In Study A the children used "that" but not "wh" complementizers differentially; the same was not observed in this study. In both studies the use of coordinate constructions and subordinate conjunctions favored the adult listener.

The analysis of attentional utterances revealed that 22% of all utterances to younger listeners contained an attentional word, 16% of adult-directed utterances contained an attentional word. The difference is not significant. While the observed percentage to younger listeners here is comparable to that reported in Study A, the adult percentage is considerably higher. The latter discrepancy seems attributable to the fact that one child was bent on using the word *Mommy* repeatedly and contributed half of the total number of adult-directed attentional utterances. It is also possible that the adult may not have listened as attentively in the spontaneous situation

as in the task situation and hence the child may have been motivated to use more attentional words.

The results of Study B, taken with those of Study A, show that 4-year-old children adjust their speech to different listeners in uncontrolled and task-oriented conversations.

TABLE 7

SUMMARY OF 4-YEAR-OLDS' TENDENCIES TO USE PARTICULAR CATEGORIES OF CONSTRUCTIONS IN LONG UTTERANCES TO ADULTS AND PEERS

CATEGORY AND LISTENER	MEASURE	
	Reciprocal Rate of Occurrence, <i>U</i>	<i>N</i> Ss Using Category (<i>N</i> = 8)
1. Coordinate constructions:		
Adult	7.5	8
Peer	11.2	8
2. Subordinate conjunctions:		
Adult	51.3	4
Peer	23.7	7
3. Pronominal adjectives:		
Adult	3.9	8
Peer	3.8	8
4. Relative clauses:		
Adult	25.7	7
Peer	50.4	5
5. Predicate complements —"that" complementizer:		
Adult	27.2	7
Peer	28.8	5
6. Predicate complements -"wh" complementizer:		
Adult	13.6	8
Peer	14.4	7
7. "To" constructions:		
Adult	4.5	8
Peer	4.3	8
8. Accessories:		
Adult	5.4	8
Peer	3.8	8

Table 7 summarizes the 4-year-olds' tendencies to produce various constructions in long utterances with adult and peer listeners. Only the results for categories 2 and 4 suggest any tendency for Ss to treat their listeners differentially. It is not surprising that there are slight differences in category use. What is surprising is the amount of similarity and the fact that no direction in favor of one class of listener over another is indicated by the differences. While the results for the subordinate conjunction category favored the peer, those for the subordinate conjunction category favored the adult. All other categories showed no differential rate of occurrence; at least half the Ss used all the categories with both listeners. A comparison of tables 4 and 7 illustrates that peers are treated more like adults than they are like 2-year-olds.

Attentional utterances again show that Ss' conversations with peers were similar to those with adults. Seven percent of all utterances to adults and

13% of all utterances to peers contained an attentional word. The difference is not significant by a sign test.

A comparison of the results of this study with those of Studies A and B supports the hypothesis that 4-year-olds can adjust to the changing listener capacities of young children.

and status. These factors also may have influenced the speakers. The increased use of attentional words with the youngest listeners provides clear evidence that the speakers responded to their listeners' ability to pay attention. Comments from several children suggest that the 4-year-olds had some knowledge of a 2-year-old's cognitive abilities. As they watched 2-year-olds play with the toys, the Ss commented to E:

A. B.: He thinks it goes like that, but it goes like that.

R. F.: She won't be able to get them out.

D. H.: She can't. Maybe I can do it. Perry doesn't know how to . . .

Apparently the 4-year-olds doubted that the younger children had the capacities to use the toy properly.

Shipley and Shipley (1969) showed that Quaker children reveal an awareness of their listener's status in their differential use of *thee* and *thou*. Our Ss also seemed to be responding to status when they instructed their listeners on the use of the toy. Investigators of adult interactions have shown that speakers tend to mitigate requests to superiors and aggravate requests to inferiors (Labov & Fanshel, in preparation). This can be accomplished by altering the form of an imperative. Our 4-year-olds tended to use unmodified imperatives with the 2-year-olds. They tended to soften the imperatives to adults with phrases like *You're supposed to* or *You have to* (see, e.g., J. K., p. 9).

Thus, the 4-year-old seems to take account of a variety of listener characteristics when he adjusts his speech. More research utilizing a variety of listeners may show how each of these characteristics influences the speaker.

FURTHER INDICES OF SPEECH ADJUSTMENT

We have focused primarily on variations in syntax as our index of speech adjustment. We expect that there are other types of speech analyses that also warrant attention. For example, Weeks (1971) has shown that speech registers such as clarity and pitch may be good indices of the young child's adjustment to a listener. May (1973) provides some evidence that the data presented in this *Monograph* reveal listener-dependent differences in voice-onset time.

It may also be possible to index speech adjustment by considering the speaker's choice of lexical items. A further inspection of our Study A data failed to reveal a listener-dependent use of "baby talk," for example, the use of diminutives such as *horse* and reduplications such as *choo-choo*. But it did reveal a selection of concrete versus abstract verbs, for example, *show*, *look at*, *see* versus *know*, *remember*, and *guess*. Our Ss in Study A tended to use concrete verbs with their younger listeners and abstract verbs

with their adult listeners. For example, when the main verbs introducing "wh"-complementizers were analyzed along a concrete-abstract dimension, we found that 68% of those verbs directed to adults were abstract. Only 16.7% of those directed to younger children were abstract.

Thus there is evidence in our data that there are some lexical choices based on listener differences. How such choices interact with the syntactic adjustments reported is an important question for future investigation.

IMPLICATIONS FOR A THEORY OF LANGUAGE ACQUISITION

In addition to revealing the preschooler's burgeoning skill in communication, our data bear on the nature of the language acquisition process. The work on mother's speech shows that very young children receive from adults a fairly narrow and simple subset of the varieties of adult speech (Nelson 1971; Phillips 1970; Snow 1972). Such restricted inputs presumably make language learning easier for the very young child (Snow 1972). Our results show that 4-year-olds (with and without younger siblings) make similar adjustments for 2-year-old listeners. They use a preponderance of short utterances and make less frequent use of complex constructions. As illustrated in the protocols on pages 9 and 13, the speakers often repeat utterances or parts of utterances. Apparently, even 4-year-olds help to produce a restricted and redundant linguistic environment for the early language learner.

We suggest that the boundaries of the environment are influenced to a great degree by the cues provided by the 2-year-old himself. For example, behaviors of inattention may serve to elicit redundancies that aid in the processing and categorizing of linguistic information. Moreover, the 2-year-old responds best to a level of speech slightly more advanced than that which he himself produces (Shipley, Smith, & Gleitman 1969). His unresponsiveness to other levels of speech may function as a further cue to the speaker to adjust his level more appropriately. Indeed, the differential adjustments that 4-year-olds make to older and younger 2-year-olds suggest that the speakers respond to direct feedback from their listeners on the appropriateness of their production level. This position is further supported by work on adults. Snow (1972) showed that mothers reduced more in the presence of 2-year-olds than when they merely were told to talk as if a 2-year-old were present. This result suggests that, while the mothers knew they had to simplify their language, feedback from the child was necessary to maximize reductions.

The hypothesis that 2-year-olds elicit from their speaker a level of linguistic stimuli that is useful to the development of their own language rests on the assumption that the speech thus elicited and addressed to the 2-year-old is not simply a reduction to the 2-year-old's production level. For if it were, the 2-year-old would receive no new information from which to build his linguistic knowledge.

MONOGRAPHS

- Hymes, D. Competence and performance in linguistic theory. In R. Huxley & E. Ingram (Eds.), *Language acquisition: models and methods*. New York: Academic Press, 1971.
- Hymes, D. Models of the interaction of language and social life. In J. J. Gumpertz & D. Hymes (Eds.), *Directions in sociolinguistics*. New York: Holt, Rinehart & Winston, 1972.
- Inhelder, B., & Piaget, J. *The early growth of logic in the child*. London: Routledge & Kegan Paul, 1964.
- Jacobs, R. A., & Rosenbaum, P. S. *English transformational grammar*. Waltham, Mass.: Blaisdell, 1968.
- Jakobson, R. *Child language, aphasia, and phonological universals*. The Hague: Mouton, 1968.
- Jespersen, O. *A modern English grammar on historical principles*. London: Allen & Unwin, 1961.
- Joos, M. *The English verb*. Madison: University of Wisconsin Press, 1964.
- Klima, E., & Ballagi-Klima, U. Syntactic regularities in the speech of children. In A. Bar-Adon & W. Leopold (Eds.), *Child language: a book of readings*. Englewood Cliffs, N.J.: Prentice-Hall, 1971.
- Krauss, R. M., & Glucksberg, S. The development of communication: competence as a function of age. *Child Development*, 1969, 40, 255-266.
- Labov, W., & Fanshel, D. *Therapeutic discourse*. In preparation.
- McNeill, D. The development of language. In P. Mussen (Ed.), *Carnichael's manual of child psychology*. Vol. 1. New York: Wiley, 1970.
- May, J. Listener-dependent effects on voice-onset time in the young child's speech. Unpublished term paper, University of Pennsylvania, 1973.
- Menyuk, P. Syntactic structures in the language of children. *Child Development*, 1963, 34, 407-422.
- Nelson, K. Pre-syntactic strategies for learning to talk. Paper presented at the biennial meeting of the Society for Research in Child Development, Minneapolis, 1971.
- Phillips, J. R. Formal characteristics of speech which mothers address to their young children. Unpublished doctoral dissertation, Johns Hopkins University, 1970.
- Piaget, J. *The language and thought of the child*. New York: Harcourt, Brace, 1928.
- Piaget, J. *The child's conception of the world*. New York: Harcourt, Brace, 1929.
- Piaget, J. *The child's conception of physical causality*. London: Routledge & Kegan Paul, 1930.
- Piaget, J., & Inhelder, B. *The child's conception of space*. London: Routledge & Kegan Paul, 1956.
- Rosenbaum, P. A. *The grammar of English predicate complement constructions*. Cambridge, Mass.: M.I.T. Press, 1967.
- Selman, R. L. Taking another's perspective: role-taking development in early childhood. *Child Development*, 1971, 42, 1721-1734.
- Shantz, C. U., & Watson, J. S. Spatial abilities and spatial egocentrism in the young child. *Child Development*, 1971, 42, 171-181.
- Shipley, E. F., & Shipley, T., Jr. Quaker children's use of three: a relational analysis. *Journal of Verbal Learning and Verbal Behavior*, 1969, 8, 112-117.
- Shipley, E. F., Smith, C. S., & Cleitman, L. R. A study in the acquisition of language: free responses to commands. *Language*, 1969, 45, 322-342.
- Snow, C. E. Mothers' speech to children learning language. *Child Development*, 1972, 43, 549-565.
- Weeks, T. Speech registers in young children. *Child Development*, 1971, 41, 1119-1131.