



Word

ISSN: 0043-7956 (Print) 2373-5112 (Online) Journal homepage: <https://www.tandfonline.com/loi/rwr20>

# Mother-Child Communication: The Function of Maternal-Language Input

Susan R. Braunwald

To cite this article: Susan R. Braunwald (1971) Mother-Child Communication: The Function of Maternal-Language Input, *Word*, 27:1-3, 28-50, DOI: [10.1080/00437956.1971.11435613](https://doi.org/10.1080/00437956.1971.11435613)

To link to this article: <https://doi.org/10.1080/00437956.1971.11435613>



Published online: 16 Jun 2015.



Submit your article to this journal [↗](#)



Article views: 182



Citing articles: 4 [View citing articles](#) [↗](#)

# Mother-Child Communication: The Function of Maternal-Language Input

The function of maternal-language input in a female child's *initial* language acquisition (from birth to twenty months) was studied to determine in what ways maternal behavior and language might be specifically instructive to the child. The data studied consist of (1) parental diaries of language behavior during infancy, (2) an extensive, systematic record of daily linguistic production—including the linguistic and nonlinguistic context—from twelve to twenty months, and (3) transcriptions of tape-recorded interval samples from sixteen to twenty months.

Many of the mother's natural linguistic and behavioral accommodations to the child's developmental status were found to be potentially instructive to a child acquiring language. The sequence of language acquisition as it relates to maternal-language input was documented. It was demonstrated that language is emerging in a social and cognitive milieu as part of a general process of socialization and that mother and child were partners in a subtle, dynamic communication process in which the expressive means available to both participants gradually evolved.

**1. Introduction.** The purpose of this research is to demonstrate the role of maternal communication in the overall process of a female child's language acquisition. This study documents empirically a subtle, continuous interchange between a mother and her developing child and defines the effects of maternal behavior and speech in relationship to the child's *initial* comprehension and production of language.

There is one paramount theme which emerges as the nexus to an understanding of the influence of maternal speech in the overall process of the child's language development. This theme is best defined as a mutual striving on the part of both mother and child to communicate with one another. This desire to communicate is an incalculably important impetus to a form of unconscious accommodation between them which causes the mother to modify her behavior and her language. In effect, what develops

within this parent-child communication process, as the child acquires language, is the expressive means available to both participants to make themselves understood.

**2. Description of the study.** Laura is the second child of professional parents. Her father is a physician. Her mother is a teacher and graduate student who has remained at home much of the time to care for Laura and her older sibling, Joanna. There is a two years and nine months age difference between the two children. Neither child has been exposed to television at home, so that this important (and frequently overlooked) variable as a source of language input is not relevant to this study.

The study was begun when Laura was ten days old. She looked up from nursing and cooed contentedly in her mother's arms. This event marked the beginning of a continuous and evolving communication process between mother and child. The study terminated when Laura was twenty months old. At this time, although mean length of utterance (*MLU*) was not calculated, Laura's language conformed to descriptions of Stage I speech.<sup>1</sup> By twenty months, Laura was producing sentences which contained the basic semantic or functional relationships of Stage I speech as defined by Brown.<sup>2</sup> Structurally, she was producing sentences which contained noun phrase (*NP*), subject-verb (*SV*), verb-object (*VO*), subject-object (*SO*), subject-verb-object (*SVO*), negative, and imperative constructions. Table 1 illustrates Brown's functional description of Stage I semantic relations with examples selected at random from samples of Laura's speech from nineteen to twenty months. Table 2 illustrates Laura's use of syntax for the same time period.

The data analyzed consist of (1) parental diaries of Laura's language behavior during infancy, (2) an extensive, systematic record of her daily linguistic production from twelve to twenty months, and (3) transcriptions of tape-recorded interval samples from sixteen to twenty months.

The daily entries in the longitudinal record contain a complete notation of the speech event, including its linguistic and nonlinguistic contexts. For this reason, it is possible to delineate the role of maternal speech in relationship to Laura's developing linguistic competence, as well as her production. However, it was a veritable impossibility to record all of her daily speech, and the following criteria for notation were established: speech was recorded if it contained (1) new lexicon, (2) an attempt at a "new" grammatical structure regardless of correctness, or (3) a given "new" gram-

<sup>1</sup> See Roger Brown, *A First Language: The Early Stages* (Cambridge, Mass.: Harvard Univ. Press, 1973), pp. 63-245.

<sup>2</sup> *Ibid.*, pp. 172-186.

TABLE 1. BASIC SEMANTIC RELATIONS IN STAGE I WITH EXAMPLES FROM LAURA:  
1;7.0 TO 1;8.0\*

---

Two-term Relations

Agent and action

1. L: "Children, children crying." The sound of children's play could be heard in the distance.  
L. ran up to M. and said this.

2. L: "Laura talk."

Action and object

1. L: "Lock door." L. is trying to close the patio door.  
2. L: "Hear radio." L. is trying to turn on the radio.

Agent and object

1. L: "Dee-Dee Pamper (Joanna diaper)." L. found a diaper and is putting it on her doll. J. does try to pin L. into a Pamper diaper.  
M: "What did Dee-Dee do with the diaper?"

L: "Pin me. Pin me."

2. L: "Daddy cream. Sue cream already. Sue cream. Sue already." L. is watching M. and F. put cream in their coffee.  
M: "Yes, I have cream already."

Action and locative (or location)

1. L: "Lie down pillow." L. is trying to make M. lie down on a pillow.  
2. L: "Down swing set." L. is leading M. down the stairs to the swing set.  
M: "Okay."  
L: "See-saw. See-saw."

Entity and locative (or location)

1. L: "Cracker juice." L. is dunking her cracker into her cup of juice.  
2. L: "Key lock." L. is trying to fit the key into the keyhole.

Possessor and possession

1. L: "Daddy radio. Daddy radio." L. is pointing to F.'s radio.  
2. L: "Dee-Dee building. Dee-Dee building." L. is walking by J.'s building.

M: "Yes, that's Dee-Dee's building."

L: "Pretty."

Entity and attribute

1. L: "Black dog." L. is watching a black dog.  
2. L: "Bottle dirty." L. took her dirty bottle from the crib.

Demonstrative and entity

1. L. uses *see* to call M.'s attention to objects in the immediate environment.

Three-term Relations

Agent, action, and object

1. L: "Gluck change me." Past ref. L. had just returned from Mrs. Gluck's. She is presently swinging.

\* These relations are adapted from Roger Brown, *A First Language*, tables 22 and 23 (pp. 174 and 175).

|  |   |
|--|---|
| Agent, action, and locative                  |   |
| 1. L: "Laura sit chair."                     | L. is trying to climb into her carseat.                         |
| Agent, object, and locative                  |   |
| 1. L: "Laura side bike."                     | L. is on her way outside. She did ride the tricycle.            |
| Action, object, and locative                 |   |
| 1. L: "Mommy, find bottle, Find bottle bed." | L. is searching for her bottle. She found it under her blanket. |
| M: (M. looked for the bottle).               |   |
| L: "Here are." (L. found the bottle.)        |   |
| Expansion of NP                              |   |
| 1. L: "Sue hair wet."                        | L. is watching M. set her wet hair.                             |
| 2. L: "Pour Dee-Dee milk."                   | L. is trying to pour J.'s milk.                                 |
| Four-term Relations                          |   |
| Agent, action, object, and locative—O        |   |
| Expansion of NP                              |   |
| 1. L: "Key open Sue car."                    | L. is trying to open M.'s car with a key.                       |
| Negation                                     |   |
| 1. L: "No-no Laura Lornie book."             | L. is standing in front of Lornie's bookshelf.                  |
| 2. L: "No-no kitty bite me."                 | M. let the cat into the house.                                  |

---

matical structure until such time as that structure became a clearly established feature of her language, or if it was (4) "typical" language at a given moment in time.

As a consequence of the sampling procedure, the examples of mother-child communication from the daily longitudinal record contain speech which was at the vanguard of Laura's linguistic production. To ascertain whether the same processes operated in the same manner in a typical interchange, three hours of tapes for the period from sixteen to twenty months were transcribed and analyzed. The analysis of the diaries of infancy was included to determine if there was a discernible pattern of interchange which began in a "prelinguistic" period and was continuous over time.

**3. The significance of mother-child communication.** The study of mother-child communication in a continuous body of data answers in part a number of interesting questions which have confronted us as we approach the more general subject of language acquisition. What is the function of maternal speech in relationship to Laura's initial acquisition of syntax? What role do imitation and reduction, expansions,<sup>3</sup> and interaction rou-

<sup>3</sup> See the treatment of expansions in *The Acquisition of Language*, ed. Ursula Bellugi and Roger Brown, Monographs of the Society for Research in Child Development No. 92 (1964).

TABLE 2. GRAMMATICAL STRUCTURES PRESENT IN LAURA'S SPEECH BY TWENTY MONTHS WITH EXAMPLES FROM 1;7.0 TO 1;8.0

|                |   |   |
|----------------|---|---|
| Subject-Verb   | <p>1. L: "Laura pour."<br/>           2. L: "Laura knock. Laura knock."<br/>           3. L: "Clean me. Sue clean me."<br/>           1. L: "Lock door."<br/>           2. L: "Made tature. Made tature, Daddy." (<i>tature</i> = picture.)<br/>           3. L: "Honk horn."<br/>           1. L: "Daddy cream. Sue cream already. Sue cream. Sue already."</p>    | <p>L. is pouring milk onto the tray of her high chair.<br/>           L. is knocking on F.'s door.<br/>           Past ref. M. had just changed L.'s diaper.<br/>           L. is trying to close the patio door.<br/>           L. is excitedly showing F. a drawing which she had just made.<br/>           L. is trying to honk the car horn.<br/>           L. is watching M. and F. put cream in their coffee.</p> |
| Verb-Object    |   |   |
| Subject-Object | <p>M: "Yes, I have cream already."<br/>           1. L: "I get it bag." (<i>get it</i> = verb.)<br/>           2. L: "No-no kitty bite me."<br/>           M: "No, we won't let the kitty bite you."<br/>           1. L: "Sue car green car. Green car."<br/>           2. L: "Ka-king truck gone." (<i>ka-king</i> = ice cream.)</p>                              | <p>L. is picking up a bag.<br/>           M. let the cat into the house.</p> <p>No environmental cue. L. is being rocked back to sleep.<br/>           Wishful thinking! There was no ice cream truck in the first place.<br/>           L. is picking up foam rubber blocks.<br/>           L. is writing with Sue's pen.<br/>           L. and M. are approaching M.'s house. His cries are audible.</p>              |
| Noun Phrase    |   |   |
| Verb-Phrase    | <p>3. L: "My block."<br/>           1. L: "Write Sue pen."<br/>           2. L: "Hear Matthew crying."</p>  |   |
| Negative       | <p>3. L: "Help me. Help me. Open me green car."<br/>           1. L: "No touch, mommy. Bad girl. Bad girl."<br/>           2. M: "Let's see if Mr. Benton came. Would you see if the blue truck's there, please?"<br/>           L: "No Benton truck."<br/>           1. L: "Lie down pillow."<br/>           2. L: "Sue make Laura bottle. Make Laura bottle."</p> | <p>L. is trying to open M.'s car.<br/>           M. is taking outgrown clothes from L.'s drawer.<br/>           L. went to the front window to look for Mr. Benton's truck.<br/>           L. is trying to make M. lie down on a pillow.<br/>           M. is preparing L.'s bottle. The tone of urgency in L.'s voice suggested an element of command and not just description.</p>                                    |
| Imperative     |   |   |

tines with occasional question<sup>4</sup> actually play at the critical moment when she first attempts to combine two words? In what ways does mother-child interchange indicate that Laura's initial two-word combinations are semantically and structurally too sophisticated to be described adequately by a pivot grammar? How do mother-child exchanges demonstrate that Laura's linguistic competence is well in advance of her production?

The answers to these questions, on the basis of extensive empirical data on one child, cannot provide a definitive, "universal" answer relevant to all children. However, they do suggest that the environmental variable of maternal behavior and speech cannot be ignored. Language is not unfolding in an environmental vacuum but in relationship to and in discourse with another human being. The question of how this other human being participates in the process must be considered a significant variable in a theory of language acquisition.

**4. Infancy: Definition of the function of language.** The primary demonstrable role of maternal behavior and speech in relationship to Laura's language acquisition in infancy is a *functional* rather than a structural one. It is through mother-child verbal interchange and maternal behavioral response to vocalization and gesture that Laura first begins to discover the function of language. In essence, she learns that her vocalizations and gestures can serve a communicative intent. As early as six weeks, her vocalizations, other than crying, convey both pleasure and frustration. Interestingly, the social smile also appears at this time:

April 2, 1971 (L: 0; 1.18) Many cooing throaty noises throughout nursing. Cooing noise is a definite noise of contentment. Sometimes Laura rounds her lips and a throaty "O" sound is the result.

"*Dialogue*"—If I respond to her cooing while she is being held or changed, she responds back:

L: Cooing sounds.

M: "Is that so?", "Are you sure?", and so on.<sup>5</sup>

L: Further cooing in response.

These "conversations" can be sustained for as long as five minutes. Laura is always looking very intently at my face and especially into my eyes. She is silent while I answer.

<sup>4</sup> See Roger Brown, Courtney Cazden, and Ursula Bellugi, "The Child's Grammar from I to III," in *Child Language: A Book of Readings*, ed. A. Bar-Adon and Werner F. Leopold (Englewood Cliffs, N.J.: Prentice-Hall, 1971), pp. 382-412.

<sup>5</sup> L = Laura.

M = Laura's mother (also referred to by Laura as *Sue*).

— = Pause.

"*Ang*"—Noise of frustration. Laura makes this noise when she is trying to roll over, cannot find her pacifier, or is frustrated in other ways. If I answer the "ang," there is no crying. If I ignore it, she eventually cries.

*Smile*—Sign of contentment and communication. She smiles during our "conversations."

The "conversations" between mother and child continue throughout infancy, particularly at times of sustained eye contact, such as feeding or diaper change.

By three months, there is a significant new dimension to Laura's "conversations." Mother can now sometimes elicit a repetition of a sound which is in Laura's repertoire:

May 20, 1971 (L: 0;3.0)

L: Cooing.

M: "You must be teasing," and so on.

"Can you say *ging*? Say *ging*. *Ging*."

L: "Ging" + cooing.

M: "You said *ging*."

It is not until six months, however, that it is possible to prove that Laura will imitate a sound in her repertoire from maternally initiated speech with a communicative intention:

August 17, 1971 (L: 0;5.27) *Ah-ging game*—First demonstrable attempt at imitation with a communicative intent. I always play with Laura while I change her diapers, and this game is just one of several. I have been periodically trying this game in order to see at what age Laura will try to imitate a sound in order to elicit a desired response. I say "Ah-ging" as I rub noses with her, smile, and chuck her chin. If she wants to reinitiate the game, it must occur to her to try to say "Ah-ging." (I chose this sound because it is one which she babbles.) In the last four games, she has reinitiated the game by attempting to imitate the sound.

As the example of the "Ah-ging" game indicates, love games between mother and child are a form of physical and verbal communication during infancy. Many of her mother's traditional and self-invented love games with Laura involve a simple, repetitive verbalization which accompanies an equally repetitive, fixed physical gesture. Interestingly, throughout her infancy it is the verbalization rather than the gesture which is the important cue for Laura in these games:

May 20, 1971 (L: 0;3.0) *Patty-cake*—Laura loves to play patty-cake. She laughs and flaps her hands together. She will respond to the words alone, but she does not respond to the motions alone.

July 20, 1971 (L: 0;5.0) *Be sorious game*—When Laura is crying, I say to her "Don't be miserable. Be sorious." I tickle her as I say "Be sorious." She is now conditioned so that she laughs at the words "Be sorious."

The significance of pairing a verbalization and a physical gesture becomes clearer when, at nine months, Laura spontaneously transfers this

form of communication to a nongame setting. Although she has never said "Bye-bye," she begins to wave consistently to the appropriate word in the appropriate situational context. That this is an intentional gesture is proven a few days later when she generalizes it to serve her own purposes:

November 28, 1971 (L: 0;9.8) *Bye-bye*—Laura definitely waves to the word *bye*. She also waves when she wants to get down from the high chair. She is delighted with this trick of waving. We play a game in the mirror. I say "Bye-bye, baby" as I am ready to step away and she waves to herself.

The consistent use of gesture becomes one of her first communicative tools. Indeed, the fact that the correct verbalization is soon paired with the appropriate gesture suggests that gesture should be considered a step in language acquisition. Only one month after Laura first used the gesture of waving, her mother's wave cues Laura's verbal response, "Bye."

The history of the word *bye* in the following five months (L: 0;10-1;3) provides an unusual insight into the importance of an affectively secure mother-child relationship to Laura's language acquisition. Shortly after Laura developed the ability to say "Bye," her mother was suddenly hospitalized for one month and then physically unable to care for her during the following two months. During this period, Laura retained the gesture of waving in both situational contexts but "forgot" the word. Although she learned other words throughout this period, *bye* did not actively reenter her vocabulary until five months later. It is tempting to speculate on the psychological reasons underlying Laura's behavior. Whatever the reasons, the fact remains that she did not again utter the word *bye* until her mother was definitively returned to her. In fact, she concentrated her efforts on the word *hi*, which she used incessantly throughout this interval of her mother's recuperation.

The growth of Laura's ability to comprehend language during infancy is inextricably bound to her social and cognitive development. As she begins to recognize and relate in nonverbal ways with the significant people in her environment, she also begins to respond to the recurrent events in her life. Although at seven months there is still no demonstrable comprehension of spoken language, it is apparent that Laura understands the repetitive actions which define her daily routine. For example, if she is crying to be fed and is placed in the highchair, she will stop fussing and wait expectantly for food. By eleven months, the mere mention of a favorite food will have an identical effect, and the verbal label functions alone in lieu of the physical signal:

February 1, 1972 (L: 0;11.11) *Cheese*—Laura understands this word and tries to say it. She was very hungry this morning. I said, "Cheese, cheese. Do you want some cheese?" She stopped crying and said "ch, ch" [f]. I then reinforced this by taking her to the refrigerator and saying "Cheese, cheese."

It is, in fact, in a recurrent routine that Laura's first demonstrable comprehension of maternal language is noted:

November 3, 1971 (L: 0;8.14) First demonstrable comprehension—*Kitty-cat*—Laura sits in her high chair in the morning. When we say "Kitty-cat" she turns around and looks down to watch the cat come in for his breakfast. The last two mornings, she clearly did this in response to the word *kitty-cat*. To check that the word was the cue, we said "Kitty-cat" in a variety of unrelated situations and in the absence of the cat. In each case, Laura stopped what she was doing, turned around, and looked for the cat.

As these examples indicate, the comprehension of the physical reality for which a verbal label stands precedes demonstrable comprehension of spoken language.

By one year, Laura's comprehension of maternal language is demonstrably ahead of her production. An interesting example is the word *car*. Laura clearly discriminates and understands this word in maternal speech:

February 24, 1972 (L: 1;0.4) *Car*—Laura understands this word. I said to her, "Come on, Laura. Let's go bye-bye car." She took my hand and led me from the kitchen, across the house, out the front door, and over to the car. If I say "Let's go bye-bye," she goes to the door as if for a walk but does not lead me to the car.

Although she comprehends the word *car* in maternal speech, she does not have a specific word *car* in her lexicon. Her lexicon at this time consists of seven words, one of which is *bowwow*, with the overextended meaning of the sound of a car engine or the sight of a passing car. One month later, she discontinues this overgeneralization. There is still no word in her lexicon for 'car'.

March 29, 1972 (L: 1;1.9) *Bowwow*—*Bowwow* is no longer used for cars and mechanical noises. It is now used exclusively for dogs and barking.

Almost another two months pass before the word *car* per se enters her lexicon:

May 12 and 13, 1972 (L: 1;2.22 and 23) *Car*—Laura said "Car" as a car drove by our house. Later she said it while looking at our car. She obviously identifies cars correctly.

As this example indicates, there is a considerable time lag between Laura's comprehension of the word and her actual production of it.

In spite of the fact that her lexicon is limited to seven words, Laura succeeds in communicating many of her basic needs to her mother. The basis of this communication is the fact that her mother learns the meaning of Laura's nonword repetitive sounds which are uttered in a recurring situation:

January 24, 1972 (L: 0;11.4) "O"—Laura says this sound in her high chair when she wants our attention. She says "O, O, O." The family responds in kind.

January 31, 1972 (L: 0; 11.10) "O"—"O, O, O" has been transformed into a noise meaning 'I want'. Laura does this at meals until we figure out what she wants from the table.

Using a combination of consistent gesture, repetitive sound in a recurrent situation and seven "words", Laura demonstrates that she knows that vocalizations are appropriate to social interaction. In effect, one must credit her with rudimentary knowledge of the function of language.

As the result of physical maturation and of a continuous, evolving social and cognitive interaction with her environment and in particular her mother, Laura at one year demonstrates a nascent understanding of the function of language. Without ever having combined two words, she has already taken a giant step in the direction of language acquisition. What she now lacks and will develop over the next eight months as she begins to acquire symbols and syntax is the tool or expressive means of verbal communication used by her speech community.

**5. Twelve to sixteen months: The acquisition of symbols.** The physical transition from infancy to early toddlerhood is marked by a qualitative transition in the nature of mother-child communication. As in the period of infancy, there is a continuous process of accommodation between mother and child which contributes to Laura's language acquisition.

The evolution in mother-child interchange, which prevails throughout the period of early toddlerhood, results from her mother's intuitive understanding that Laura is receptive to verbalizations but in some way hindered in her actual ability to produce language. At this juncture in Laura's development, her mother modifies her language and behavior in two significant ways. She begins (1) to label Laura's environment and (2) to rely on verbal rather than exclusively physical intervention in structuring Laura's activities.

Her mother's consistent, simplified labeling of the physical environment provides Laura with a symbol paired to a concrete situation:

1. (L: 1; 0.20) As M. handed a book to L.  
M: "Here's your book."  
L: "Ba."
2. (L: 1; 0.20) L. is sitting in her high chair.  
M: "Do you wanna get down?"  
L: "Da. Da."  
Two days later (L: 1; 0.22), L. finished her breakfast and began to shout.  
L: "Da. Da." (*Da* became her signal to get down from the high chair. It replaces her earlier signal of waving.)  
Three weeks later (L: 1; 1.10), L. finished her breakfast.  
L: "Da. Da."

- M: "Down, Laura? Wanna get down?"  
L: "Da."
3. (L:1;0.23) L. is sitting on the kitchen counter.  
M: "Do you want a cookie?"  
L: "Cookie." (M. then gave a cookie to L.)  
Five minutes later, L. dropped her cookie on the floor, pointed, and said "Cookie."  
Two days later (L:1;0.25), L. went to the kitchen cupboard.  
M: "What do you want, Laura?"  
L: "Cookie."
4. (L:1;0.26) M. is pointing out a picture of a bird in L's book.  
M: "Bird."  
L: "Bur." (L. returned repeatedly to this page.)  
Later the same day, there is a robin on the front lawn.  
M: "Bird."  
L: "Bur."  
One day later (L:1;0.27), as L. handed M. a plastic bird from a barnyard set.  
L: "Bur. Bur. Buit. Buit."
5. (L:1;0.27-28)  
M: "Butter. Butter." (As M. spread butter on L's bread.)  
The next morning, as L. held up her bread. (The butter was directly across from her on the table.)  
L: "Buh. Buh."
6. (L:1;1.13) M. is holding L. in her lap and reading a nursery rhyme.  
M: "Rub-a-dub-dub, three men in a tub."  
L: "Dub. Dub. Dub."  
Four days later (L:1;1.17), L. is "reading" a book.  
L: "Dub. Dub. Dub."

This maternally initiated labeling activity is didactic, directed specifically to Laura, and apparently a maternal accommodation to her developmental status. A noticeable feature of it is the simplicity and, in many instances, even absence of syntax.

As in infancy, Laura's reciprocity is an impetus to maternal behavior. Within the range of her capabilities, she responds with an imitation of the maternal model. Using monosyllables or the phonetic reduplication of "babbling," she incorporates an approximate imitation of her mother's symbol into their repertoire of commonly shared knowledge. As a participant in the process, her mother realizes that "dada" can mean 'doll', 'father', 'baby', 'Joanna', or 'Laura herself', and that "ba" can mean 'book', 'ball', 'round object', 'milk', or 'liquid in a cup'. The situational context generally provides her with adequate information to derive Laura's meaning:

April 20, 1972 (L:1;2.0) Subjective impression—I notice that L.'s speech is much more purposeful and less random than it was one month ago. I may be the only

person who could understand her at this point, but she is consistent enough in her use of "words" so that she does clearly communicate her most fundamental needs to me.

It should be emphasized that, although Laura comprehends many words in maternal speech, her capacity to produce a word is extremely limited. Apparently, in her initial acquisition of a lexicon, she must rely on an overextension of the meaning of a few "words." By the end of this period, however, she has started to differentiate her lexicon into symbols in one-to-one correspondence with specific objects. The development of the word *dada* illustrates this process of differentiation. By 16 months, *dada* means 'father' or 'any other man'; *baby* has been added to her lexicon to express 'baby', 'doll', or 'Laura'; and Joanna is now called *Dee-Dee*.

As the examples of maternal labeling illustrate, her mother is providing Laura with a constant flow of simplified semantic information. To appreciate the full impact of this input on her language acquisition, one must remember that it is a continual daily part of mother-child interchange throughout this period. Indeed, it seems reasonable to assume that this maternal labeling activity is of considerable value to Laura as she begins to acquire a lexicon and to expand her comprehension of language.

The second significant modification of maternal behavior involves her mother's intuitive assumption that Laura is capable of comprehending language. As a result of Laura's behavioral responses to language, her mother begins to escalate gradually the means of mother-child transactions to a symbolic one. She begins to replace direct physical intervention by verbal instructions. For instance, in matters of discipline, it is no longer essential to remove Laura from verboten items. A simple verbal message, "Not for Laura", delivered in a firm tone of voice usually suffices. Laura's comprehension of the concrete reality underlying spoken language is the actual basis of this increase in mother-child verbal communication:

April 9, 1972 (L: 1; 1.19) Comprehension.—Laura is beginning to know what things belong where—not just from a verbal point of view. For example, if she finds a pair of socks, she tries to put them on her feet. Although the final result is still primitive, she scrapes her spoon across her plate in imitation of our eating. She knows where in the kitchen to look for cookies, cheese, milk, and bananas. She dumps the puzzles and bangs the pieces against the empty board in imitation of Joanna. She understands the household routine.

The complexity of the interrelationship between prior cognitive organization of the physical environment, behavioral indications of the comprehension of language, and the emergence of observable verbal behavior is well illustrated in the following example:

April 9, 1972 (L: 1; 1.19) *Baba = Banana*. Apparently L. wants a snack.  
L: "Baba." (As she took M. to the refrigerator.)

- M: "Where's the banana?" (After M. opened the refrigerator door.)  
 L: Pointed to the banana.  
 M: "If you want to eat a banana, you'll have to sit in your high chair."  
 L: Ran to her high chair, which is in the dining room.  
 M: Put L. in the high chair and gave her a banana.  
 L: "Baba." (Numerous times while eating her banana.)

It is important to remember in our discussion of mother-child communication that we are describing a dynamic process. At no point in this process is Laura's language comprehension or production static. Nor are her mother's subtle adjustments to advances in Laura's ability. Thus, at the beginning of this period, her mother adopts a form of "insurance policy" in her essential verbal transactions with Laura. Since she is uncertain as to how much of her adult model Laura actually comprehends, she modifies her speech in situations in which she hopes to avert misunderstanding between them:

- April 3, 1972 (L:1;1.13) L. and M. are in the kitchen.  
 L: "Cookie."  
 M: "No cookie. Cookie bye-bye."

Working with thirteen middle-class subjects 18 months to 2½ years old, Smith has demonstrated experimentally the theoretical significance of the mother's behavior: "The younger children focused on minimal utterances containing familiar words. These utterances elicited responses of attention and affirmation most frequently (from the younger children only). On the basis of our experimental data, we doubt that these children attend very much to the adult parts of adult speech. More generally then, we doubt that their primary linguistic input is as rich or as confusing as has sometimes been suggested."<sup>6</sup> In light of Smith's experimental data, the finding that Laura's mother naturally and unconsciously adjusted her language to minimal utterances in her essential verbal transactions with Laura during this period is a striking one. Notice, however, that even these minimal utterances are more advanced than Laura's production.

There is a gradual increase in the complexity of the verbalization to which Laura appears to respond appropriately. Indeed, at fifteen months she seems to comprehend a complicated sequence of events and to accept her mother's verbal reassurance.

- May 20, 1972 (L:1;3.0) Comprehension—Laura seems to understand me better in the last week. For instance, I will say to her, "Mommy is going bye-bye. Laura is

<sup>6</sup> C. Smith, "An Experimental Approach to Children's Linguistic Competence," in *Cognition and the Development of Language*, ed. J. Hayes (New York: John Wiley & Sons, 1970), p. 118.

going to swim with Jen. Then Mommy will come back, and Laura will say 'Hi, Mommy.'" I can tell from her face that she is listening—and she seems to understand me because she does not cry when I leave her.

Although her mother substitutes nouns for pronouns and avoids an embedded sentence, there is a marked increase in the syntactic complexity of the sentence which she now addresses to Laura. In effect, as Laura's comprehension gradually increases over the period from twelve to sixteen months, the expressive means available to her mother in a verbal transaction subtly expand also.

Note that her mother's labeling of the physical environment paired with her increased reliance on verbal rather than physical communication is addressed to a child whom we are crediting with some rudimentary knowledge that language is the medium of social interaction. Viewed from Laura's perspective, her mother's language and behavior are in fact an affirmation of her nascent understanding of the function of language.

During the period from twelve to sixteen months, mother-child interaction has been instrumental in helping Laura to acquire a small set of consistent symbols to describe the essential people, needs, and recurring events in her environment. In addition, this interaction has been gradually escalated in the direction of verbal transactions. It is then with some confirmed knowledge of the function of language, a small but highly meaningful lexicon (64 words and 70 meanings) to manipulate, and an apparent comprehension of some spoken language that Laura approaches the task of combining words creatively. In maturational and experiential terms, she is "on the brink of syntax."

**6. Sixteen to twenty months: The emergence of syntax.** The function of maternal speech in Laura's *initial* acquisition of syntax can now be defined from the perspective of its role in a dynamic process of intuitive maternal accommodation to Laura's developing ability to communicate. From this perspective, it is possible to demonstrate that expansions and a form of child-initiated interaction routine with occasional question are part of an evolving communication network in which her mother has consistently and unconsciously modified her speech and behavior to complement Laura's developmental status.

Seventeen variables were examined in the daily longitudinal record and the tape-recorded sample for the period from sixteen to twenty months. The variable most predictive of particular behavior on behalf of either mother or child was "initiator of speech event." In the examples in which her mother initiated the speech event, it is possible to demonstrate that Laura's comprehension has continued to develop to the point where it is

significantly in advance of her production. In the examples in which Laura initiates the speech event, it is possible to delineate the function of maternal speech in relationship to Laura's initial acquisition of syntax. The greatest and potentially instructive modifications of maternal speech occurred in response to child-initiated speech events.

Again, it must be stressed that we are discussing an incredibly dynamic process. At the beginning of this period, Laura barely combines two words. In fact, her two-word combinations are fixed routines with "hi" and "bye." At the end of this period, she is able to use NP, SV, VO, SO, SVO, negative, and imperative constructions.

The striking feature of *maternally initiated* speech to Laura from sixteen to twenty months is the absence of significant modification of the adult model as a communication check. Her mother's speech directed specifically to Laura now contains syntax, and Laura's behavioral and verbal responses indicate that she understands it. It could be argued that one word or the situational context are the source of her comprehension of this speech. Considered within the framework of her prior competence, however, it is equally credible to assume that she is indeed developing an ever-increasing ability to process adult language.

A high-frequency form of question directed to Laura in the course of daily activities is "Do you want" + *noun* or *infinitive phrase*. These "Do you want questions" are complementary to the development of negation since Laura's answer to many of them is an emphatic "No." As the following examples illustrate, her negative answer is not a fixed routine (she comprehends the question, and her negative response is intentional):

June 13, 1972 (L:1;3.23) M. is offering L. an unfinished glass of milk.

M: "Do you want the milk?"

L: "Un-un, lola." (*No, pacifier.*) (As L. took the pacifier instead.)

July 28, 1972 (L:1;4.8) L. and M. are playing together on the floor.

M: "Do you wanna be tickled?"

L: "Cockle, cockle no-no." (*Cockle = tickle.*) "Papa. Papa."

M: M. complied by singing "Oompah-pah."

L: "Papa go. Go."

M: "Now do you want a tickle?"

L: —. "Toe."

M: M. complied by playing This little piggy.

M: "Do you want a tickle?"

L: "Toe."

By twenty months, "Do you want" questions also play a role in the development of Laura's ability to make a simple choice based upon verbal alternatives. In this sense, they may contribute to her eventual understanding of the immediate future as opposed to the present. An example follows.

September 22, 1972 (L:1;7.2) L. and M. are getting in the car.

M: "Do you wanna put on your seat belt or should I?"

L: "Laura do it." (L. then took the seat belt and tugged at it.)

Similar to "Do you want" questions is a past tense "Did you+some recent action" question:

August 11, 1972 (L:1;5.21) Discussion at the dinner table.

All of L.'s comments refer to events which transpired this afternoon while L. and M. were visiting a friend.

M: "Did you go to Daniel's?"

L: "Toto. Bottle. Ni-ni." (L. is correct. Christopher, Daniel's brother, had a bottle and went to bed.)

This kind of question focuses Laura's attention on a recently experienced aspect of the environment and stimulates her to express her perceptions verbally.

Her mother also addresses a variety of *Wh*-questions to Laura. *What*, *where*, *who*, and a very infrequent *why* are among the questions directed to Laura. These maternally initiated questions function as a continuation of the process of categorizing the essential people, needs, and recurring events in Laura's life. In her response to these questions, she answers with the appropriate one word or two words—a fact which strongly suggests that she has understood the question. Examples follow.

August 9, 1972 (L:1;5.19) L. had been playing outside and came into the house to see M.

M: "What's Dee-Dee doing?"

L: "Bike."

July 31, 1972 (L:1;5.11) L. and M. are having lunch. L.'s information is correct.

M: "Where did you go this morning?"

L: "Gluck." (Mrs. Gluck is L.'s baby-sitter.)

August 17, 1972 (L:1;5.27) L. is eating a piece of cheese.

M: "Who is eating cheese?"

L: "Laura."

August 23, 1972 (L:1;6.3) M. is making lunch and yells to L. and J.

M: "Who wants peanut butter?"

L: "Me."

September 28, 1972 (L:1;7.8) L. spent the morning with the baby-sitter. When she returned home, she had a tantrum.

M. addressed this question to L. half an hour after the tantrum.

M: "Was Laura sad? Why did Laura cry?"

L: "Sue bye-bye. Sue bye-bye." (L. has actually responded with the casual part of the sentence, "I cried because Sue left.")

During this period, Laura is also responsive to her mother's imperative and declarative sentences, some of which are quite complex:

October 3, 1972 (L:1;7.13) L. is mushing a cookie.  
 M: "If you're done with your cookie, I'll take it."  
 L: L. handed M. the remains of the cookie.

Some of her mother's most complicated speech to Laura involved sequential ordering. These sentences ask Laura to delay her gratification until a contingency has been met. Her apt responses suggest that she comprehends the sentences:

August 17, 1972 (L:1;5.27) L. is on the changing table.  
 M: "I'll tickle you as soon as I put on your diapers."  
 L: "Now."

September 28, 1972 (L:1;7.8) L. is at the dinner table.  
 M: "You can sit in my lap when you finish eating."  
 L: "Food gone." (L. held up her partially empty bowl.)

One of the clearest examples of her comprehension of a sentence involving sequential ordering is her "translation" of the meaning of a friend's adult model into her own "child language":

October 2, 1972 (L:1;7.12) A friend and her baby are visiting. L. is observing the preparations for departure.  
 Judie to her baby: "We can't go until I change you."  
 L: "Toto bye clean airplane." (*Airplane* = L.'s word for 'penis' by overextension of the shape of the fuselage of a toy airplane!)

Laura's remark is not an imitation. She has not retained a single word from the adult model, but she has retained the meaning. "Christopher will leave when he has a clean penis" is indeed the essence of the projected sequence of events as expressed in his mother's remark.

As all of these examples illustrate, Laura is increasingly attentive to and ostensibly understands the sense of much of the ongoing conversation around her. It is important to realize that at the time that she is initially attempting to produce syntax in her own speech, she is also demonstrably responsive to the language input of her environment.

In child-initiated speech events, her mother responds with a form of unconscious modification of her speech which serves two general functions: (1) further information is requested and (2) Laura's perception of reality is validated or invalidated. Her mother requests further information in a child-initiated interaction routine with constituent prompt and occasional question. She verifies Laura's verbal coding of reality with expansions, paraphrases, truth affirmations, and truth corrections. As in her previous interaction with Laura, she attempts to communicate optimally within the confines of Laura's capabilities.

In a child-initiated interaction routine, Laura has provided her mother with insufficient data to interpret the meaning of the sentence, and her

mother modifies her speech in an attempt to elicit additional information. Her mother's routines with Laura differ somewhat from Brown, Cazden, and Bellugi's definition.<sup>7</sup> The constituent prompt is not "Say constituent again," since Laura has failed to say the constituent in the first place. The modification of maternal speech is a simplification of the occasional question—"Baby what?" in lieu of "Baby is doing what?" Nevertheless, these routines are potentially instructive to Laura in much the same way that Brown suggests that maternal interaction routines may have been useful to Adam, Eve, and Sarah. Some, but not all, of these routines involve modification of maternal speech.

From sixteen to eighteen months, these interaction routines with Laura elicit the missing parts of an implicitly larger structure:

1. Subject-object—object elicited.  
 May 21, 1972 (L:1;3.1) L. is watching M. cut bananas.  
 L: "Baby, baby."  
 M: "Baby what?"  
 L: "Baba." (*Banana.*)
2. Subject-object—subject elicited.  
 June 8, 1972 (L:1;3.22) L. had returned from observing J. in the bathroom.  
 L: "Caca."  
 M: "Who made caca?"  
 L: "Jo."
3. Subject-verb—verb elicited.  
 August 21, 1972 (L:1;6.1) No cue. The family is at breakfast.  
 L: "Mommy, mommy."  
 M: "Mommy what?"  
 L: "Talk. Mommy talk."  
 M: "Show mommy where the talking comes from." (M. was trying to verify.)  
 L: L. put her hand to her ear.  
 J: J. then put her hand to her ear, and J. and L. began to play telephone.
4. Subject-verb—subject reelicited.  
 July 13, 1972 (L:1;5.23) No eliciting cue.  
 L: "Car go."  
 M: "What did you say?" (M. has never heard this before.)  
 L: "Go."  
 M: "What goes?"  
 L: "Car go."
5. Subject-verb—subject elicited.  
 August 23, 1972 (L:1;6.3) The cat was on the coffee table. He was biting and scratching M., who was trying to remove him.  
 L: "Bite. Bite."  
 M: "Who bites?"  
 L: "Kitty."

<sup>7</sup> Brown, Cazden, and Bellugi, pp. 399–403.

6. Verb-object—object elicited.  
 August 23, 1972 (L:1;6.3) M. removed L. from the crib but forgot the bottle.  
 L: "Get, get."  
 M: "Get what?"  
 L: "Bottle."
7. Verb-object—object elicited. (*See* is the most frequent verb for which M. elicited an object.)  
 July 31, 1972 (L:1;5.11) L. turned around in her high chair to watch the cat come in.  
 L: "See, see."  
 M: "See what?"  
 L: "Kitty."
8. Possessive—item elicited.  
 July 30, 1972 (L:1;5.10) L. is looking directly at F.'s car.  
 L: "Daddy."  
 M: "Daddy's what?"  
 L: "Car."
9. Possessive-possessor elicited.  
 August 2, 1972 (L:1;5.13) L. is in her high chair. M.'s notebook is on the table across from her.  
 L: "Book."  
 M: "Whose book is that?"  
 L: "Mama."
10. Noun and adjective—noun elicited.  
 September 1, 1972 (L:1;6.12) L. is riding behind M. on a bike.  
 L: "Happy, happy."  
 M: "Who's happy."  
 L: No response.  
 M: "Is Laura happy."  
 L: No response.  
 A minute later.  
 L: "Happy."  
 M: "Who's happy?"  
 L: "Laura."  
 A few minutes later and numerous times throughout the rest of the ride.  
 L: "Happy Laura. Happy Laura."

As these examples suggest, child-initiated interaction routines appear to be providing Laura with useful information in her initial acquisition of syntax. In fact, these routines are particularly prevalent during the transitional period between the one-word and the two-word stage. Regardless of the form of maternal speech, these routines with Laura result from her mother's awareness that Laura is not expressing all that she perceives. Laura's response to them confirms this intuitive notion that the cognitive underpinnings of a more complex relationship are already present.

It is not until Laura begins to produce a two-word or longer utterance that expansions<sup>8</sup> begin to appear as a regular feature of maternal speech. Mother's expansions of one-word utterances fail because her interpretation of the meaning is incorrect:

June 29, 1972 (L:1;4.9) L. is playing on the kitchen floor.

L: "Baby."

M: "You're a baby. That's right."

L: "Cry."

By eighteen months, Laura has begun to combine two words, and her mother begins a process of expanding and "echoing" which may be of real value to Laura. This example from the tape-recorded sample is a typical interchange and exemplifies maternal language input:

August 20, 1972 (L:1;6.0) L. is eating breakfast.

L: "Laura, more, Laura."

M: "Laura wants more? What do you want more of?"

L: "Want bana" (*banana.*)

M: "You want more bananas, Laura?"

L: "Yeah."

A moment's pause.

L: "Laura."

M: "What do you want more of, Laura?"

L: "Bana, bana." (*Banana, banana.*)

J: "Bananas?"

L: "More bana." (*More banana.*)

M: "More banana!"

L: "My bana." (*I want banana=sense.*)

M: "What Laura?"

L: "More bana." (*More banana.*)

M: "More banana, okay."

L: "Bana." (*Banana.*)

M: "Banana. That's what you want."

M. then brought a banana to the table.

M: "Who wants to eat a banana?"

L: "I."

Note that Laura tries a range of two-word combinations in response to her mother before she actually succeeds in obtaining a piece of banana.

Laura's mother's expansions function either as truth affirmations or as a form of communication check. However, not all of her mother's truth affirmations and communication checks are expansions. Thus, some truth affirmations take the form of an expansion, with an additional "yes" or "that's right" for emphasis:

<sup>8</sup> See n. 3 above.

October 6, 1972 (L:1;7.16) The grocery delivery truck just left.

L: "Truck go."

M: "Yes, the truck is going."

L: "Truck going."

October 6, 1972 (L:1;7.16) L. and M. are eating lunch.

L. spent the morning at Mrs. Gluck's.

L: "Home Gluck. Home Gluck."

M: "That's right. You're home from Mrs. Gluck's."

In a communication check, her mother literally echoes Laura's declarative sentence with a rising intonation pattern. Laura often cooperatively responds with a form of affirmation such as "yeah" or a restatement of her initial utterance:

October 7, 1972 (L:1;7.17) Elicited by a magazine photograph of a mother rocking a baby.

L: "Baby help mommy, daddy."

M: "The baby helps the mommy and the daddy?"

L: "Yep."

A corollary to the other functions of maternal speech is the truth correction. Truth corrections take a number of syntactic forms. Basically, however, they all involve some acknowledgment that Laura's original statement is incongruent with reality:

October 18, 1972 (L:1;7.28) L. is in her crib.

L: "Sue car broken. Sue car broken."

M: "My car's not broken."

L: "Daddy green car."

M: "No, Daddy's car's blue."

The form most likely to be syntactically instructive to Laura provides information about the positive-negative contrast. In essence, her mother provides a negative model of Laura's original positive sentence, a contrasting pair of sentences, or both:

October 12, 1972 (L:1;7.22) J. and L. are wearing bathrobes.

L: "Dee-Dee jacket too."

M: "No, that's not a jacket. That's a robe."

Throughout this period, the role of expansions becomes increasingly important in proportion to the diminution of child-initiated interaction routines with constituent prompt. By the end of this period, some of her mother's replies to Laura, while not expansions in the strict sense of Brown's definition, do answer the meaning of the child-initiated statement in a conversational response. Basically, her mother models a possible elaboration of Laura's initial statement, including its converse. These conversational replies build on her mother's interpretation of Laura's meanings. They expand the scope of her meaning and do not necessarily retain

her syntax. They function to crystallize the sense of the conversation, or to elaborate it and extend it logically, or both:

October 15, 1972 (L:1;7.25) L. saw F.'s jacket in the open closet.

L: "Daddy, daddy jacket."

M: "Yes, that's daddy's jacket." (Expansion, truth affirmation.)

L: "Pretty, pretty."

M: "Do you like daddy's jacket?" (Conversational reply.)

L: "Yeah."

October 17, 1972 (L:1;7.27) L. is being changed.

L: "Toto hit me. Toto bite me. No cookie. No cookie."

M: "You mean Toto doesn't get a cookie if he bites you?"

L: "No cookie Toto."

October 19, 1972 (L:1;7.29) L. is in her bedroom. She will not go to sleep, and she is crying. This is part of a real conversation in which she expressed her fear of my leaving and also her fear of the shower.

L: "Sue back soon. Sue back. Sue back, back Laura. Sue back ready."

M: "Yes, Sue's back already." (Expansion.)

M: "If Sue goes bye-bye, she always comes back to Laura." (Conversational reply—logical extension of the meaning of this conversation.)

October 19, 1972 (L:1;7.29) L. is sitting on the kitchen floor.

L: "Daddy not home. Daddy back soon."

M: "No, daddy won't be home until dinner time."

These natural conversational responses, in contrast to her mother's earlier routines in child-initiated speech events, are the essence of creative language. They confirm the notion that her mother adjusts her behavior and language in response to each new skill which Laura acquires, and they underscore the communicative intent of mother-child verbal transactions. Since they elaborate on the meaning of Laura's initial statement, they may be instructive to her logically and syntactically if her task as a language learner is to discover the connection between meaning and syntax.

By separating the subject of mother-child communication into a series of variables, this discussion obscures the dynamic quality of the reality of the process. In actuality, these variables coexist (along with others not mentioned in the present analysis), complement one another, and are essential to the larger task of communication. It should not be forgotten that these variables were extracted from the ongoing conversation between Laura and her mother and that the primary intent of this conversation was communication.

Laura's speech at twenty months conforms to Brown's description of Stage I speech. In a short four months she has acquired the basic syntactic tools of her language. Her word order is now a reliable indicator of the meanings behind her utterances. Throughout this same period she has con-

tinued to expand her knowledge of the function of language and to acquire symbols (391 words). By twenty months, at Stage I, Laura is not at the beginning of language acquisition but well into a process which dates from earliest infancy.

**7. Conclusion.** This analysis of mother-child communication describes one aspect of a deep and meaningful relationship between Laura and her mother. The separation of one variable from the larger whole of the mother's relationship with her developing child is in many ways an arbitrary one. Indeed, it is difficult to express "scientifically" the richness, intimacy, and subtle evolving accommodation which existed between her mother and Laura during these twenty months.

Throughout this entire period from earliest infancy with its "conversations" and "love games" to toddlerhood and the initial acquisition of symbols and syntax, there has been one constant. Mother and child have been a team. There was a continuous, natural communication between them as, together, they tried to know one another and the surrounding environment. With each of Laura's advances, her mother unconsciously responded with an accommodation which functioned as an impetus in the direction of the next "new frontier." Indeed, this observation raises an interesting question. Is it not possible that within a dynamic process there is an optimal period during which a given maternal adaptation is of greatest value to the child?

It is impossible to know how much mother-child communication contributed directly to Laura's overall language acquisition. But surely, this intangible, daily interchange must function to some extent as a motivational force which makes all the *hypothesis testing, learning*—or whatever term one ultimately selects to describe language acquisition—a first-priority activity for Laura.

In conclusion, as this study demonstrates, language *is* emerging in a social and cognitive milieu as part of a general process of socialization. We should not ignore the function of this milieu in an inclusive theory of language acquisition.

*Department of Psychology  
University of California  
Los Angeles, California 90024*

