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THE EFFECT OF CONTEXT ON MOTHER-CHILD INTERACTION

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by

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ABSTRACT

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by

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Much of the literature on language acquisition and mother-child interaction has been based on the observation of so-called "naturalistic" behaviors. Samples of behavior are usually collected by an observer with a video or tape recorder, and it is generally assumed that what is being captured is a representative sample of "typical behaviors. The observer and his equipment are considered a neutral "third eye" to which subjects have become accustomed.

The possible effect of the observer's presence on the nature of mother-child interaction was the focus of the present study. It was hypothesized that the presence of the investigator defined a formal context in which particular behaviors might be displayed for the benefit of the observer. Interactions of ten white middle-class and ten white lower-class mothers, and their two-year-old children were videotaped under two conditions: 1) when subjects were aware of the observation, and 2) when they were not aware of being observed. Analyses of variance were conducted comparing dyads both across observed/unobserved condition and across socioeconomic group.

Striking differences were found across the observed/unobserved condition. When aware of being observed, there were

significant increases in such behaviors as maternal speech production, gesturing, initiation of and response to interactional game sequences.

For middle-class mothers, the change in behavior across contexts was generally more pronounced than it was for the lower-class dyads, and appeared to constitute an attempt at aiding the child in processing and responding. These mothers displayed behaviors for the investigator's benefit showing them to be "good" teachers and active participants in interactions with alert children. In contrast, when unaware of the observer's presence, they were frequently inattentive and much less often engaged with their children.

Lower and middle-class dyads were more similar in the unobserved condition than in the observed. Changes across conditions were less marked for lower than middle-class pairs, and differed somewhat in form. Lower-class mothers placed less emphasis on displaying lively mother-child interaction. Speaking, playing alone or displaying ritualized knowledge (i.e. saying the alphabet or counting) seemed to satisfy lower-class mothers' expectations for an adequate child performance in the observed condition. Though at age two, children's behaviors were remarkably similar across condition and SES, at a later age, after social conventions for performance are integrated by the child, he may encounter a match or mis-match between his own and the conventional displays expected by others in formal contexts like the traditional classroom.

Differences in performance expectations and the interactional repertoires practiced by the children may effect their subsequent evaluation in a system which is generally not sensitive to what is considered appropriate to a particular context by members of various socio-cultural groups.

This study also raises questions about the accuracy of the traditional interactional literature, which assumes representativeness of data across contexts. Since mothers and children change their behavior when the interpersonal context changes, measures obtained with an observer present may be representative only of a subset of behaviors geared for the particular viewing audience. It is not that the unobserved condition reflects "naturalistic" behavior in contrast to "un-naturalistic" behavior in the observed condition, but rather that human life is richly textured and mothers and children are involved in numerous contexts in the course of a day. Behaviors are likely to be adjusted according to a sense of what is appropriate to those settings. A broad, culturally-relative perspective would be useful in looking at aspects of language-learning and mother-child interaction.

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BACKGROUND AND STATEMENT OF THE PROBLEM

A. General Considerations

1. The Dual Focus of the Present Research

a. The Effect of the Observer's Presence on Mother-Child Interaction

In the area of language acquisition, specification of the nature of the linguistic environment with which the child has contact is essential if developmentalists are to begin to understand the nature of the language acquisition process--what constitutes "input" for the child and how it is assimilated.

In recent years there has been a concerted effort to try to assess the possible experiential input to the child's developing language system by closely examining the linguistic environment provided to the child by his primary caretaker--usually the mother. Researchers studying language acquisition have been concerned with analysis of the verbal and non-verbal messages with which the child has contact in his everyday life. The logic of this approach assumes that 1) out of a complex linguistic surround, there may be some sub-sample of linguistic

input to which the child is subjected which has a privileged place; 2) that a likely candidate for this privileged input is the speech of the mother to the child, since it is rich in special intonational, structural and gestural markings which may single it out from the rather chaotic linguistic surround; and 3) that therefore the examination of the structural and functional characteristics of maternal speech, and mothers' methods of highlighting certain aspects of it, would constitute a legitimate focus for investigating the relationship between the child's developing capacities and environmental inputs.

This is the approach that has been taken by a number of developmentalists, for example Snow (1971), Newport (1975) and Shatz (1980), who have adduced a considerable body of data on the question of what might constitute input to the child. While the jury is still out on the actual relationship between input and the emerging structure of the child's language, there are some aspects of the methodology which have been somewhat neglected and which are addressed in this present study of the effect of context on mother-child interaction.

Up to this point in time, much of the literature on mother-child interaction has been based on the analysis of observations of "so-called" naturalistic behavior. Using what are considered to be "naturalistic methods," samples of behavior are captured through the use of some type of recording device or through observation with the experimenter present, and it is usually assumed by the investigators that what is

being obtained is a sample of typical everyday behaviors occurring between mother and child. The observer and his camera are considered simply a neutral "third eye" to which mother and child have become accustomed. Subsequently, general claims are often made about the nature of the interactional phenomena across contexts on the basis of these data.

One focus of the present study is the effect of the experimenter on the behavior of the subjects. It is hypothesized that the presence of an observer and/or his equipment is more intrusive than not, and that his presence may redefine the context for subjects and elicit performances which differ significantly from those which might occur in other contexts--such as when the subjects are alone or are unaware of being observed.

b. Sub-Cultural Differences in the Nature and Display of Situationally "Appropriate" Behaviors

In addition, the child entering society is faced with a complex array of social rules and conventions. In early childhood, much external social governance comes from the primary caretaker in contact with the child, and the child, prior to schooling, gains most of his knowledge of how to conduct himself in the world by observing, interacting and negotiating with the adults in the immediate surroundings (Damon, 1977; Vygotsky, 1960). His/her initial concepts of what constitutes

appropriate social behavior, and the first knowledge of how acceptable social interactions are constructed, comes primarily from the home environment. The child must learn to recognize instances of particular contexts, acquire a plan for behavioral displays in which form and content are appropriate to such settings, and finally must be able to map these displays onto these contexts correctly. This is part of the socialization process.

It is within the context of early mother-child interaction that children learn these rules and conventions which enable them to operate in the world. Since families also exist within the larger context of a subcultural group, the child's social development will also be affected by the social organization of the culture in which he lives. It is the transmission of culturally-appropriate modes of behavior from mother to child, particularly the production of behavioral displays for a formal interpersonal audience, which is the second focus of the present study.

2. A Methodological Issue in Mother-Child Interaction

If an experimenter is looking for mappings between mothers' and children's communicative behavior, she/he

needs to consider how representative his data are of the interactional history between mother and child. The samples of behavior commonly used for "naturalistic" studies are usually collected by an observer with a tape recorder, videotape camera, or checklist for later analysis. Investigators assume that these recordings show the typical behavior patterns of mother and child during the course of their daily life. Many studies (Lewis and Rosenblum, 1974; Hess and Shipman, 1965; Shatz, 1979) make general claims about the nature of interactional phenomena across contexts on the basis of such data. The possible effect of the observer's presence on the nature of the interactions is rarely investigated, although it seems likely that this may define a particular kind of context for participants--especially when the observer is known to be a psychologist. Subjects' performances under these conditions may differ markedly from those occurring when subjects are alone or unaware of being observed. It may be that different sets of behaviors, linguistic styles and interactional strategies are used by mother and child relative to the presence of a particular audience, and that these behavioral displays may, in addition, differ as a function of socio-economic status.

This is a particularly serious problem in interpreting comparative research, such as that of Hess and Shipman (1965),

in which general claims are made about the linguistic style and interactive competence of Black mothers based on their performance in the experimental laboratory situation. Here the context of elicitation was not taken into account. Similarly, Bernstein (1974) characterizes lower-class mothers as inferior teachers and their methods of instruction as creating limitations of their children's cognitive and communicative skills. However, these conclusions are based on data collected with the observer present, and interactions between mothers and children may look quite different in other contexts. Secondly, these experimenters may be reacting to a match or mismatch of mother-child performance and their own expectations of what these interactions should look like. These factors may be coloring their characterization of the nature of the behaviors between mother and child from socioeconomic groups different from their own.

Present interest in the effect of the observer's presence on the nature of mother-child interaction arose during a study of maternal gesturing which involved the analysis of videotaped interactions of mothers with their children of language-learning age (Shatz and Graves, 1976). The study involved the analysis of videotaped interactions between mothers and their young children, where we were trying to get some insight into the role of mother's gestural signals in the

child's language acquisition process. The videotapes we worked with represented supposedly "naturalistic" interactions between mother and child, though it soon became apparent that both members of the dyad were orienting to the presence of the camera and experimenter during the course of the interactions. One of the mothers even asked the experimenter directly if she was "doing what she was supposed to do" and a second mother inquired as to whether her child's linguistic competence was comparable to that of other children his age. Though subjects may have become "accustomed" to the experimenter's presence as a result of preparatory interactions, they were clearly not oblivious to it. The marked orientation toward the camera by mother and child, and the pace and intensity of the interactions displayed by the middle class dyads, which often seemed to be in a range which would be difficult to maintain over long stretches of interactive time, indicated that what our naturalistic videotapes were, in fact, picking up, were displays of behavior for an observer, structured for a viewing audience, and seemingly intended to show the dyad in the best public light--the child as attentive competent student, and the mother as interested, caring teacher. It may be the case that much of the data base in the traditional interactive literature may be a sample of a rather specialized collection of behaviors, representative of an interaction style for particular subjects in a constrained interpersonal context, and may not necessarily be generalizable across contexts.

There is evidence in the sociology and psychology literature, showing how various contexts elicit different behaviors. Hymes (1962) for instance, suggested that social variation in speech use might be due to changes in such factors as the type of speech event being engaged in, the roles of the various parties, and/or the topic and style of the discussion. Labov (1972) and Hall (1977) also demonstrated that the presence of a particular audience could elicit different linguistic strategies from both adults and children.

Studies by Brazelton, et al. (1974) had also shown that, in the experimental situation, mothers assumed they were to play the role of socializer, constantly stimulating their infants, despite reassurances from the experimenter that such intensive interaction was neither expected nor required. In fact, children in these studies were reported as often reaching a point of oversaturation, where they were forced to turn away from their mothers to avoid the constant stimulation. It seemed plausible that the mothers' attempts to have their children perform continuously and effectively were part of a strategic "impression management," designed, at least in part, for the benefit of the observer (Goffman, 1969). There seemed to be an implicit belief among the white middle-class mothers that a child must be actively provided with a social environment in order to develop social skills, particularly in a psychological experiment.

If audience in the experimental context is, in fact, an important factor in eliciting particular types of mother-child interactional displays, then changes in the behavior of mother and child with and without a formal audience present would seem a relevant and interesting area for investigation. Studies using this design should produce displays of the behaviors considered appropriate for these contexts, and show the way in which performances are negotiated between mother and child for this particular social setting. It is a way to look at how a piece of cultural information about appropriate behavioral display patterns is transmitted from mother to child.

3. Precursor to the Present Study; The Effect of Context on Mother-Child Interaction

It seemed logical to first investigate closely the nature of the "naturalistic" experiment, with and without observer present, to see if changes of strategy in the mother-child interaction were elicited consistently across these two conditions. If so, the "naturalistic" setting with the experimenter's presence as the independent variable, could be used as a tool for investigating how the child comes to differentiate between social contexts and how she/he learns which behavioral strategies are culturally appropriate.

An attempt to address the question of the "representativeness" of "naturalistic" studies and the effect of camera and experimenter on mother-child interaction was made in a pilot study conducted by Graves and Glick (1978). Subjects were six white middle-class mothers and children of language learning age (eighteen to thirty-six months).

In order to study the effect of context, mothers and children were asked to play naturally in two different playrooms similarly equipped with toys of parallel complexity. Each subject pair was videotaped in each of two conditions. In the observed condition, subjects were aware that they were being filmed by the experimenter. In the unobserved condition, subjects were videotaped through a one-way mirror and were not aware of being observed. These two experimental conditions were counterbalanced to control for sequence effects.

A hierarchical analysis was undertaken, dealing with the data at various levels of complexity. The results showed that whereas the child's speech remained fairly stable across the two conditions, the mothers', when they were aware of being observed, approximately doubled the amount of speech they had produced in the unobserved condition. This finding was consistent across all six subject pairs examined in this initial study. The presence of the experimenter seemed to define a context in which mothers were producing greatly increased amounts of speech in comparison to situations in which they did not know they were being observed, perhaps as part of

an attempt to actively maintain the child's attention and promote interactive contact.

It also found that the mean length of utterance (MLU) was lower in the observed condition, where the experimenter was present, than when the observation was unobtrusive. The general shortening of mothers' MLU was in keeping with Newport's (1976) description of "motherese," a speech form characterized by short, syntactically simple utterances, spoken with less dysfluency than speech to adults. However, the Graves and Glick study indicated that the MLU, though generally reduced in length, may show additional variance with context. It may have been the case that additional condensation of the mothers' speech was part of an attempt to facilitate the child's language processing in a condition where the mother-child interaction was being observed.

The study also revealed that the amount of maternal gesturing, another significant aspect of mother-child communication, increased significantly in the observed condition. This might also be a part of the work the mothers seem to be doing in the observed condition to have the child appear attentive and perform well. The inflated number of gestures displayed in the presence of the experimenter may also account in part, for why there seems to be an unclear mapping of gesture onto the linguistic system in experiments where data collection is not unobtrusive (Shatz and Graves, 1976).

In an analysis of the syntactic content of the mothers' speech, it was found that the distribution of utterance types was roughly comparable across the two conditions relative to the total amount of speech produced. Though there seemed to be no significant change across conditions in this area, analysis of the functional forms of these utterances showed changes across conditions for some specific categories. Maternal production of 1) indirect directives, which are "polite" forms of imperatives; 2) test questions, through which mothers could elicit displays of already-learned vocabulary from their children; 3) positive evaluative comments, which could be used to reinforce behavior selectively, and 4) repetitions of the mothers' own utterances, which could give the child a second chance to pick up and act on unfamiliar linguistic information from her speech stream, all increased in the observed condition relative to the unobserved condition.

One of the more interesting findings in this study came from an episodic analysis of interactions on a pragmatic cross-utterance level. It was found that mothers concentrated mainly on two kinds of interactions in the free-play situation, one involving object reference and the other, activity with objects. These took the form of naming and action "games" or routines, and were prevalent, particularly in the observed condition, with the white middle-class dyads. The "games" are actually patterned interaction sequences, acquired early on by the child, which serve as a type of interactional blueprint or the

beginnings of a social script, and may facilitate the introduction of patterned variation to the child. They are often-repeated formats, engaged in mutually by mother and child, which are somewhat flexible in that particular element (vocabulary words or physical tasks) can be systematically varied to incorporate aspects of any immediate context. In addition, these games can also act as functional frames for the rehearsal and display of previously acquired knowledge. This makes them advantageous in a situation where a child's display of knowledge is deemed appropriate and/or beneficial.

Because children appear to be familiar with these formats, having worked out the interactional design over time through repeated practice with his caretakers, they look knowledgable and attentive when engaged in them with their mothers. They may even be presented with situations in various settings where they have had direct experience with the actual content of a routine, having practiced in the past with the same vocabulary or physical actions required for the ongoing game. In this case they will look even more skilled and competent, and mother and child are likely to maintain a joint focus of attention when involved in these interactional sequences.

In the Graves and Glick study, as was expected, the number of naming and action games played by mothers and children was significantly greater in the observed condition, where the experimenter was present, than in the unobserved

condition. In fact, when the dyads were unaware of being observed, they spent more than half the time with no joint focus of interaction between mother and child. These were periods in which there appeared to be no communicative contact as evidenced by lack of common subject matter in speech, absence of eye contact or common visual focus, and disjunctive body orientation.

In general, the data seemed to indicate that the presence of an observer and his/her recording equipment produced a change in the types of behaviors displayed by middle-class mothers in interaction with their children. The presence of this particular audience defined the setting for these dyads as one in which certain strategies were to be employed and certain kinds of performances given. It appeared that the child was indirectly being given information about the kinds of behaviors adult members of their society expect to occur in interactions in this type of context. Over a period of time in which this type of dyadic interaction was repeated, and where similar behavior changes across context were negotiated by mother and child, it would seem likely that the child would integrate the elements of appropriate behavior/setting mappings and eventually be able to produce them without ongoing direction from the mother.

4. The Present Study

In order to study the ways in which mothers and children display particular types of behavior in social contexts and the relationship between behavioral displays and socioeconomic and educational variables, a variation of the experimental paradigm described above was adopted. It was decided that the two free-play situations, with and without the observer present, would be a useful design for closely examining the way in which a social convention--the form of culturally appropriate behavior to be displayed in the presence of a formal audience--came into play in the presence of the experimenter.

Since socioeconomic class may be an important distinguishing variable in mother-child interaction style, the present research project was designed to provide an opportunity to study changes in interactive strategies of mother-child dyads from white middle-class and white lower-class populations, when confronted by changes in context. The study provides for 1) description of the communicative procedures used by mother and child in the interactional setting for both groups; 2) descriptive documentation of changes in the nature of the mother-child interaction in different contexts; and 3) comparison of dyadic interactive style and strategies across and within socioeconomic group for all mother-child pairs.

B. Theoretical Considerations--Review of the Relevant Literature

The present research is a pioneering study in that the effect of context on mother-child interaction and its relationship to socio-economic class has not been directly approached in the psychological literature. Looking at the ways in which children acquire plans for displaying appropriate social behaviors in the presence of particular audiences necessitates drawing on aspects of previous research not only from the field of developmental psychology, but from the related fields of cognitive anthropology and sociolinguistics as well.

There are three primary areas of study which contribute to the overall concept of the present work. These are research on 1) the manner in which young children acquire knowledge in interaction with their primary caretakers; 2) the relationship between behavioral displays and the type of audience present; and 3) the relationship between behavioral display and social class. Each of these areas and the related literature will now be discussed.

1. Transmission of Knowledge in Mother-Child Interaction

The social world must somehow come to be perceived by the child in terms of a constrained framework representing an interpretation of the values of his reference group. The

social order is constructed, displayed and communicated through speech and action in everyday parent-child interactions. In order to begin to understand the development of social displays by the child, it is necessary to analyze the ways in which mothers and children organize concerted activities together.

The mother-child interactional setting and its effect on socialization has been studied by Vygotsky (1960) among others. He has theorized that the child's social interactions in the physical world provide the context in which mediated processing and higher mental functions are developed. Functions first appear at the "interpsychological" or social level and are only later integrated at the "intrapsychological" or individual level. Vygotsky points out that children develop the ability to deal with the situations by first "acting out" the appropriate behaviors under others' directions. Through this process, children begin to learn how to plan, regulate and monitor the appropriate steps for accomplishing a task.

Shotter (1974) has also noted that in mother-child interactions in general, the locus of control for the structuring of the interaction lies with the adult. The contribution of mother and child to the ongoing interaction, particularly with young children, is unequal. In discussing the acquisition of social competence, he points out that a child's development is not something that simply "emerges," but is directed toward particular goals by the adults with whom he interacts. He suggests that there is no natural teleological outcome for the

development of human beings, but that the process of becoming a person is essentially indeterminate and is constantly being negotiated between mother and child. Children acquire the ability to interpret the meanings of actions and events through coordinating their behaviors with others, usually adults, and making agreements about what will go on in the moment. The child acquires information both from doing activities in the social setting and from the social consequences his actions elicit from others around him. Thus, the child learns through doing--engaging in actions on the physical and social surroundings which, in the early part of his life, are directed and defined by the significant adults in his life.

Wertch, Hickman, McLane and Darcey (1978) further elaborate on the differential roles of mother and child in mutual interactions. They describe the mother as a "metacognitive expert," who initially carries a large part of the cognitive load for the child or "metacognitive infant." When the dyad confronts a task, the "expert" develops a directional plan based on the overall requirements of the task. She establishes the goals, determines the means for their accomplishment, and directs the inexperienced child through the various procedures. Through this process of social apprenticeship, the child begins to learn how to plan, regulate and monitor the sequential steps of a task. Initially there is a need for the mother to spell out the nature of the

proceedings and indicate to the child the behaviors which are appropriate to the activities at hand. The mother acts as a socializing agent, instructing the child in the correct means of accomplishing culturally-defined tasks. Gradually the responsibility for producing appropriate behavioral displays will be assumed by the child independently.

This process of integrating elements of task accomplishment is discussed by Wood, Bruner and Ross (1976), and their approach is useful in examining the ways in which interactional strategies and the production of appropriate informational displays are taught to the child. They describe the mother-child tutorial process as a kind of "scaffolding" in which the adult plans activities whose overall goals may be beyond the child's understanding, but organizes the activities so that the child can follow one step at a time using the interactive procedures already in his repertoire. This process not only assists the child in the completion of the task, but serves in the development of task competence. For the child, the comprehension of the specific situational goals and the knowledge of the means of accomplishing them, must be learned through structured interactions with the mother, before the child himself can become the plan maker. The child's ability to conceive of and implement plans is thus greatly shaped by early experiences in interaction with the primary caretakers.

Frameworks of Mother-Child Interaction

While particular social encounters may be individually negotiated between mother and child, the notion of a "shared culture" provides an outline for how interactions in organized contexts are expected to occur. The conventional formats for interactions and facets of interactions might be thought of in terms of frames, scripts or protocols for dialogue and action, describing a sequence of events considered appropriate to particular contexts. These must be learned by the child eventually in order for him to produce performances in social situations considered requisite and appropriate by his cultural group.

Recent researchers studying social interaction have defined culturally shared knowledge from several perspectives. Minsky (1974) presents a notion of frame based on information-processing research. In his theory, a frame is described as a structured piece of knowledge about some typical entity or state of affairs. According to his theory, one selects from memory a projected conception of the structure and content of the event to be embarked upon. This "frame" is adjusted to fit reality by substituting current details from the on-going situation. Each frame theoretically provides information about its appropriate context, expectations, and alternative strategies in the event that expectations are not confirmed. Collections of frames fit into systems which supposedly act

to economize on mental calculations by providing a means of making useful generalizations and by-passing step-by-step deductive reasoning. If the child learns these processing packages through "apprenticeship" to adults in social situations as was described previously, he would be able to eventually approach interpersonal situations on his own in culturally standard ways.

Goffman (1974) has attempted to isolate some of the basic frameworks of understanding which seem to be used in Western society for making sense out of everyday events. In his theory of frame analysis, he examines the principles of organization that seem to govern events and people's subjective involvement in them. In his system, frames define social scenes, their social significance and expected behavioral patterns. The original interpretive framework for a particular event is defined as a "primary frame"--it describes a base level perception of reality. Goffman also postulates a set of conventions, called a "key," by which a given event, already meaningful in terms of a primary frame, can be transformed or "keyed" into a <u>different</u> activity. This "keying," though patterned on the original frame, is perceived as a different type of activity by the participants/observers. "Keying" performs a crucial role in determining what people think is going on in an interaction. In mother-child interaction, variations in context and/or audience may call for the "keying" of a new frame--and a concurrent

switching of interactional strategy as the nature of reality appears to change. The application of appropriate displays of behavior to ongoing reality and changes in context is one of the skills a child must acquire in order to function on his own in the social world.

Schank and Abelson (1975) further concretized the concept of interactional frameworks in terms of their notion of "scripts." Scripts define the prototypical negotiation of social interaction between actors in a familiar social scene. If a particular type of interaction is frequently engaged in, it is likely that a script will be formed which can be applied in similar instances to achieve similar goals. By internalizing a script, a child learns about his own role in interactions as well as about the ways others behave in specific situations.

Nelson and Gruendel (1978) also use the notion of scripting to point out that even children as young as twelve months show evidence of knowing the structure of the everyday events and routines in which they participate. Looking specifically at conversational structure, they note that general scripts develop through the shared focus of mother-child interaction, and that a familiar script whose content and structure is shared by the two participants can help extend a child's conversational skill. These representations of everyday events and interactional frameworks seem to develop very early on, and can be applied by the child to

appropriate occasions to predict general consequences. The script is only an outline, however, for the way a routine event can be expected to proceed, and "slots" in the format must be filled with the actual details of the ongoing event.

These notions of frames and scripts relate to the earlier discussion of the ways in which children acquire knowledge of appropriate behaviors in particular situations through interaction with their mothers. If learning, as Wood, Bruner, and Ross (1976) propose, is a scaffolding process in which the mother initially assumes the function of defining the goal and organizing the plans for achieving it, and the child gradually assumes an increasing role in the mutual accomplishment of a task, the notion of a scripted structure for interactional procedures seems applicable. This is a phenomenon which Bruner (1974) has noted as a distinguishing characteristic of mother-child interaction. Once a child has mastered a particular interactional routine for approaching specific situations, variations can be introduced, as in the game of Peek-A-Boo. Shatz and Graves (1976), as was mentioned previously, also noted the presence of repeated episodes, naming and action "games," where the cyclical repetitions seemed to become interactional scripts for the child. Particular elements of these interactional routines may be acquired in the step-by-step fashion proposed by Vygotsky and Wersch, and may eventually become integrated by the child as whole outlines which can incorporate novel elements from new inter-

active contexts. In this way, children would eventually be able to approach the world on their own with the frameworks they have acquired in interaction with their primary caretakers.

2. The Relationship Between Behavioral Displays and the Presence of a Formal Audience

Viewing many tapes of supposedly "naturalistic" mother-child interactions has led to speculation that the presence of a formal audience may redefine context for subjects and elicit performances which differ significantly from behaviors produced in other interpersonal situations. The setting of the natural laboratory experiment has only begun to be examined as a specialized context in which certain subsets of behaviors may be displayed. Recently, the generalizability of laboratory findings to other everyday life contexts has begun to be of concern. Some disenchantment with existing research procedures has been reflected in calls for a more ecologically valid methodology (Bronfenbrenner, 1977; Neisser, 1976) and in discussions about the compatibility of field and laboratory research (Cole, Hood, and McDermott, 1978). These studies point out that the presence of a formal audience and the artificiality of the laboratory tasks may render the results irrelevant to behavior outside the laboratory setting, which is usually the intended subject of the research. It seems to be the case that the presence of the observer elicits a

change in behavioral strategy from the subjects being studied.

Several researchers have noticed similar behavioral reorientations among mother-child dyads in the presence of the researcher/observer.

A study by Cicourel (1978) supported the postulation that the psychological experiment is recognized by participants as a context requiring the deployment of a particular set of what are deemed "appropriate" behaviors. In a study of Argentinian mother-child pairs, attempts to gather "naturalistic" data about the nature of daily interactions was confounded by mothers' attempts to provide the researcher with episodes of a particular sort. They repeatedly initiated stilted question-and-answer routines with their children, and were preoccupied with getting them to talk into the tape-recorder. Conversation, in general, Circourel stated, was apparently not spontaneous and the mother was often found to be reciting a monologue to fill conversational gaps. In one instance the recorded dialogue seemed to be well-rehearsed and especially designed for the researcher's consumption. However, in the background Cicourel detected whispered dialogue where cues were given to the children by the mother when it was time for them to say their "lines."

As Burke (1969) pointed out in his analysis of behavior in the dramatic mode, the examination of any behavioral display cannot be logically divorced from the larger social context. The nature of the more global context of the mother-

child interaction effects the nature of the ongoing activity. G.H. Mead (1967) similarly argued that when an individual considers taking a course of action, he takes into consideration the consequences of his actions for others involved, and their likely response to his action, before making a decision about the way he will behave. It is this dynamic of mutual awareness, where people take into consideration each other's considerations, that seems to change with the nature of the audience present. It seems clear that the ongoing construction and management of mother-child interactions will differ across contexts. Behavioral displays by dyads when an experimenter or his proxy are present will differ from those presented when mother and child believe they are not being observed. A comparison of behavior patterns across these two contexts should reveal important information about the nature of the displays considered appropriate to these two situations and the way in which this piece of culturally-relevant data are transmitted from mother to child.

3. The Relationship Between Behavioral Displays and Socioeconomic Variables

The mother, as a member of a sub-cultural group, necessarily reflects the values of the culture in her socialization of the child. According to Shotter (1974), socialization is a matter of praxis for the child within the social world, and

the interests and ideas of class and culture will inevitably enter into the process. Luria (1976) has also shown how the development of consciousness, memory and perceptual structures is rooted in the history of the culture. Under the mother's direction a child learns the culturally sanctioned rules both for social relations and for the forms of practical thinking that predominate in the culture. Under the influence of the adult, the young child distinguishes and fixes upon behavioral goals, which eventually become integrated and internalized, and finally, become the child's own rules of behavior. This complex process seems to be closely related to language learning, which also occurs primarily in the context of mother-child interaction. The cultural meanings inherent in language are learned through the child's actions on objects in the world, since the basic linguistic units the mother supplies to the child, and her interpretations of them, carry meaning and become units of consciousness as defined by the culture. The process of language learning results in the creation of interpretive codes which structure the nature of human social life. Indirectly, the mother formulates ends worth pursuing for the child and "appropriate" means of pursuing them, which are defined, in part, by the culture in which she lives.

How decisions are made and what decisions are made about what constitutes appropriate social behavior in a particular context may vary as a function of socioeconomic status. Most of the literature that relates to this issue comes from

the fields of anthropology and sociolinguistics where researchers like Hymes (1962) and Gumperz (1964; 1966) began to study the relationship between linguistic and social variables. They note the importance of taking the social context into account in the analysis of speech, since variations in speech also reflect variations in social relations. Labov (1972; 1974) has also demonstrated that the presence of a particular audience may elicit radically different linguistic strategies from speakers. In looking at the roles of speakers and listeners, Labov found that members of various speech communities could be differentiated by their use of alternative linguistic forms in various contexts. Linguistic features differed among the socioeconomic and ethnic groups he studied. He found that members of each speech community had several linguistic modes which would be deployed in particular social settings and in the presence of particular audiences. The consistency of behaviors displayed in these contexts reflected culturally-appropriate forms of linguistic behavior as defined by each group.

In addition, Hall, Cole, Reder and Bowley (1977), Cole et al. (1978), Jewson et al. (1976) and Heider (1971) have also studied speech styles among lower and middle-class children. In general, they have found that speech styles differed as a function of socioeconomic status and educational level, but that variations in the response requirements of a particular task had a definite effect on the type of speech produced.

This research demonstrated that there appears to be group differences in the situated use of different speech styles. In Labov's study of the effect of context on speech, for example, he noted that the change from a highly structured experimental setting in school to a relaxed, more familiar home setting, resulted in wide variations in the sophistication of the speech elicited from lower-class black children.

These studies point up the fact that there seems to be variation in the behavioral displays of members of different sociocultural groups, but that, in addition, there is also a marked effect of social context on the types of behaviors deployed in particular situations. In the present study of mother-child interaction these two relationships are of primary interest; 1) the relationship between the presence of an audience and the types of behavioral displays elicited, and 2) the relationship between socio-economic variables and the types of behaviors displayed.

C. Hypotheses

On the basis of pilot data, previous research, and convergent studies from related fields, the following hypotheses were proposed.

a) Mother-child interactive strategies are context sensitive. It was predicted that changes in interactive context would produce changes in mother-child behaviors being displayed.

Whether contextual differences would effect both the form and content of the displays, and whether changes would be consistent across socio-economic groups, was not known.

b) <u>There may be sociocultural variation in the dyadic repertoire of interactive strategies and/or the application of those strategies to specific contexts</u>. It was clear from previous research that white middle-class mothers act to elicit active verbal and physical performances from their children in the presence of a formal audience. From a preliminary examination of pilot data comparing middle- and lower-class mother-child dyads, there appeared to be differences both in the nature of the interactional strategies used, and in the domains to which these strategies were applied.

CHAPTER II

METHOD

The Subjects

Subjects were ten white middle-class dyads and ten white lower-class dyads, totaling twenty mother-child pairs. Subjects were selected from a metropolitan population center where neighborhoods contained a large representative segment of the requisite socioeconomic class.

Middle-class mothers were defined, for the purposes of this study, as having completed education past the high school level and where familial income was gained from white-collar employment. Lower-class subjects were defined as coming from families where education had not gone past the completion of high school and where familial income came from welfare payments (N = 8) or from blue-collar employment (N = 2).

Children were all of language-learning age, ten males and ten females. They ranged in age from twenty-one to twenty-seven months, with a mean age of twenty-four months for the middle-class, and twenty-five months for the lower-class dyads.

Subjects were informed that their participation in the experiment was completely voluntary, and that they would be paid a compensatory fee for their participation, plus transportation money for travel to and from the experimental setting. An appointment time was arranged with each dyad for them to participate in the experiment at the City University Graduate Center. Automobile transportation and an escort was provided for four of the lower class dyads who found it difficult to arrange their own travel.

The Setting

A playroom at City University Graduate Center was equipped with the following items: two cardboard puzzles (one geared for the age level of the children involved in the study--approximately two years; and one geared for a more advanced age level--approximately four years); an illustrated children's book; a set of plain wooden blocks; a set of blocks decorated with pictures of common household and farm animals; a set of miniature replicas of farm and jungle animals; a set of number blocks, where digits could be removed and inserted into the puzzle form; and a carousel toy with six interchangeable and moveable parts, which afforded imaginative play.

The playroom was carpeted so that both mother and child could sit on the floor, if they so desired. In addition, adult and child-sized chairs were provided in the playroom.

Decorative pictures were hung at various places in the room and on the one-way mirror. These provided conversational material for mother and child, and helped to disguise the function of the mirror.

Two experimenters were involved in the data-gathering process. The one who had made initial contact with the subjects, also introduced them to the playroom setting and operated the portable video camera which was in view of the subjects. A second colleague operated another video camera from behind the one-way mirror during the condition where subjects were not aware of being observed.

Overview of the Experiment

The twenty dyads were videotaped in the laboratory playroom under two conditions. In both conditions, mothers were instructed to play naturally with their children as they would at home if there were no one around.

Condition I (Unobserved)

In this first condition, dyads were not aware that they were being videotaped. This provided data about the nature and style of the mother-child interactions in this particular setting when subjects were unaware of the observer.

Condition II (Observed)

In the second condition, mothers and children were aware that they were being observed and videotaped by the experimenter. This condition provided an opportunity for assessing differences in interactive strategy that might be elicited by the presence of the observer. It was expected on the basis of previous work (Graves and Glick, 1976) that the experimenter's presence might act to elicit work from the mothers to produce behaviors which differed from those evident in the unobserved condition, though the types of displays might not necessarily be consistent across the socioeconomic groups.

All subject pairs participated in both conditions I and II. The order of presentation of the conditions was counterbalanced to control for sequence effects--that is, half of the middle-class and half of the lower-class sample received Order I, which consisted of the unobserved condition followed by the observed condition. The other half of these two groups were given Order II, the observed condition followed by the unobserved condition. A series of analyses was conducted to determine whether the order of presentation of the two conditions was effecting the response level on all variables.

Responses to the change in context were compared for individual dyads across conditions, as well as across socioeconomic group, to determine whether there was consistency of behavior among dyads of the same sociocultural background.

Procedure

Each mother-child dyad came to the University playroom setting to participate in the study within a week of initial contact. Mothers were told that the research involved the study of mother-child play and entailed the use of videotapes for later analyses, but that the exact nature of the variables of interest and the means of data collection could not be disclosed until the completion of the study in order to prevent biased responding. All mothers signed a subject release form documenting the fact that they understood and agreed to these conditions.

Prior to the start of the experiment, mother and child were given an opportunity to explore the playroom and surrounding areas, and to become familiar with the experimenter and the setting.

Subjects then proceeded to participate in both observed and unobserved experimental conditions.

Condition I (Unobserved Condition)

After familiarizing themselves with the playroom, mothers were told to play with their children naturally, as they would at home if there were nobody present, while the experimenter finished a telephone conversation on a nearby public telephone. The dyads who received Order I had seen the experimenter speaking on the phone when they first came in, and were given the impression that the phone call was

being resumed. Those who received Order II, witnessed the experimenter being called to the telephone by another member of the department. The voice of the experimenter could be heard engaged in conversation down the hall from the playroom setting.

During the following period, approximately fifteen minutes in length, the mother-child interaction in the playroom was videotaped unobtrusively by a colleague through the one-way mirror. During this period, a second portable video camera was clearly visible to the subjects, lying unattended on a table just outside the doorway to the playroom with the lens facing away from the subjects. Subjects presumed this to be the only camera used for the taping.

It was sometimes difficult to extend this condition for the full fifteen minutes, as subjects occasionally left and re-entered the room during this time period. The lengths of the actual unobserved sessions varied between twelve and seventeen minutes, with a mean length of fifteen and one half minutes. For the purposes of the quantitative analysis, the lengths of the tapes of Conditions I and II were equalized for each dyad in order to compare measures across conditions.

Condition II (Observed)

With those dyads who received Order I (the unobserved condition first), the experimenter reappeared after approximately fifteen minutes and apologized for having been detained

on the phone. She then proceeded to pick up the portable videocamera and began taping the dyad from the doorway of the playroom. Instructions were once again repeated--mother and child were to continue playing naturally as they would at home if there were nobody around.

Those dyads who received Order II (observed followed by the unobserved period) were given a chance to familiarize themselves with the playroom, were given the instructions, and taping was begun with the portable camera from the doorway of the playroom, with the experimenter visible. Interactions were videotaped with the known observer present for fifteen minutes.

Instruments and Measures

A method was needed for recording and coding mother-child interactions in Conditions I and II. The aim was to identify specific components of behaviors in the interactional setting that reflect the nature of the interaction and are clearly and reliably identifiable.

The units of analysis of interaction for this study were derived from previous research (Graves and Glick, 1978; Shatz and Graves, 1976), where it was found that significant behavioral changes could be measured along the following dimensions. Preliminary analyses had indicated that these characteristics might differ across conditions, relative to

the presence or absence of a specific audience.

I. Speech Production

a. Quantity of speech. Gross quantity of speech refers to the total production of mothers' and children's words and utterances during the course of each condition.

Mothers who are actively attempting to maintain their child's attention and trying to create and maintain interactive contact as much as possible, might be expected to produce a greater quantity of speech in the condition where they were aware of the observer, than in one where they were not.

The quantity of speech the children produce may also change in relation to changes in features of the interactional setting.

b. Mean length of utterance. Mean length of utterance refers to the average length of the utterances produced in mother-child verbal communication. Snow (1974) had noted that shortened MLU was one component of "motherese," a speech form characterized by short, simple utterances and spoken with less dysfluency than speech to adults.

Mothers may lower their MLU in interaction with their children as a function of the experimenter's presence, in order to facilitate the child's language processing. The variability of MLU across condition and across social class was also of interest, and standard deviations were calculated

for all mothers individually.

II. Analysis of Utterances in Maternal Speech

As part of the hierarchical analysis of the content of the mother-child interaction, the syntactic and pragmatic content of the mothers' speech was analyzed to see if there was a difference in the types of speech produced across conditions.

Maternal speech was subjected to several different syntactic and functional analyses. Initially speech was categorized in terms of one of seven functional or syntactic types: 1) questions (i.e. "What's this?"); 2) declaratives (i.e. "It's an elephant"); 3) imperatives--in the direct form (i.e. "Bring that puzzle over here!"); 4) exclamations (i.e. "Oh, boy!"); 5) attention words (i.e. "Hey, Johnny"); 6) noun phrases--partial sentences involving an object or noun subject (i.e. "Mickey Mouse") and 7) verb phrases--partial sentences involving an action or state of being (i.e. "Into the car").

In the first analysis, the distribution of these types of utterances in the corpus of maternal speech was compared within SES group across condition, and within condition across SES group, to determine how the relative amounts of each type of utterance varied with context and social class.

Next, data were re-cast in terms of whether the underlying intentionality of the utterance was a) topic comment

(a remark about an object or an ongoing interaction); b) directive (meant as an imperative to direct the child to perform verbally or manually); or c) ambiguous (where it was impossible to make a distinction). Within the framework of these three "nested" categories, three analyses were performed. The first analysis, looked at the total production of each of the "nested" category types (topic comment, directive or ambiguous) and the syntactic types within those "nests," in relation to the mother's total speech production in each condition. The second "within category" analysis looked at the percentage of each utterance type (declaratives, imperatives, etc.) falling into the topic comment, directive and ambiguous category respectively. The third analysis, took each of the three "nested" categories and examined the relative distribution of syntactic utterance types within the "nests."

Finally, four functional categories of speech production were examined: the production of 1) test questions; 2) indirect directives (in question form) 3) positive and negative evaluative comments; and 4) mothers' repetitions of their own speech. These categories were derived from the Shatz and Graves study (1976) and had been found particularly interesting and useful for characterizing the nature of the interaction among previous mother-child dyads.

III. Gestures

Gestures refers to distinct non-verbal units of communication. Shatz and Graves (1976), described six discrete gestural forms used frequently by white middle-class mothers in interaction with their children of language-learning age. These seemed to serve to direct the child's attention to the real world referents of the mother's language. The following are prototypical descriptions of the gestural categories used and a description of them. Any gesture which fits the general configuration of the gesture described was counted as an example of that gesture. (See Figure 1)

1. Presentations:

(a) Extension of an object away from the mother's body to within a foot or so of the child's face, at or below his line of vision. In presenting an object, the palm of the hand is held perpendicular to the floor, the fingers grasping the outer edges of the object so that the face of the object is exposed. The object is usually held stationary at that distance until some response is elicited from the child.

(b) Directed placement of an object within reach of the child on the floor. Only a small portion of the object is covered by the mother's hand, so that the face of the object or bulk of the mass is exposed during transport. The placement procedure is rapid and direct.

2. Iconic actions--These are symbolic representations of an action being referred to verbally. It is an "air picture" of an action with an object, where the actual object is not handled and very often is not even present (i.e. illustrating the baking of a cake by making stirring motions in the air).
3. Demonstrations--a physical demonstration of an action or a portion of an action being described, but using the actual physical objects present. Mothers often demonstrate for their children the activities they are requesting them to perform.
4. Pointing--extension of the index finger to designate an object or event in the environment.
5. Point-tapping--extension of the index finger toward, and repeated tapping on, the object being indicated.
6. Tapping--the repeated tapping of one object with another object, creating a sound.

IV. Naming and Action Games

Naming and action games are interactional units having a purpose, procedure, and a definite pattern involving verbal and gestural components. These are routines which seem to serve as interactional blueprints for the child once they become familiar. They act, in a way, as social scripts into which the mother can systematically insert unfamiliar vocabulary items (in the case of naming games), or novel

physical tasks (as in the case of action games). These routines can serve to facilitate the acquisition of new information or serve as a functional form for the rehearsal and/or display of previously acquired knowledge. These games are most often marked by specific gestural formulas which may signal the nature of the game being played.

1. Naming games--Naming games are characterized by a clearly defined cyclical interaction pattern in which there is verbalization of a "Wh" question (i.e. "What's this?") and is typically accompanied by a specific gesture (usually presentation or pointing). This is followed by a verbal response from the listener. If the response is not forthcoming or is considered inappropriate, the speaker will usually move to repair the response verbally. The sequence is then repeated.
2. Action games--Action games prototypically consist of the verbalization of an imperative (i.e. "Put the ball in the truck"), or an indirect directive ("Can you put the ball in the truck?"), and is usually accompanied by a gesture. This combination usually elicits a response (the performance of an action), and is subsequently repeated.

Naming and action games are useful formats, apparently familiar to most middle-class children, for the display of verbal and manual skills, as well

as for the assimilation of new material. These games were analyzed in terms of:

(a) the gross measure of numbers and types of games produced;

(b) length of the game-playing time relative to other forms of mother-child interaction, such as transition periods, periods where there is no joint focus of attention, and conversational interactions; and

(c) the number of "rounds" or cycles in each game, and the internal format of the interactional sequence.

3. Attempts at initiating interactions--Analysis was undertaken of all attempts by both mother and child to intentionally initiate an interaction, both through verbal and non-verbal means, with the other member of the dyad--that is, to engage the other person's participation in a mutual activity.

(a) Mothers' responses to children's initiation attempts--A positive response was recorded when mothers accepted the interactional offer and became engaged with the child in a mutual verbal or physical activity. A mother's responsiveness to a child's requests for interaction can facilitate or deter continuity of the interaction and connectedness between

mother and child. It was anticipated that there may be differences in the responsiveness of mothers to their children's requests for interaction across conditions I and II. An analysis of mothers' responses was conducted for all dyads.

(b) Children's responses to mothers' attempts at initiating interactions--A positive response was counted when children accepted the mothers' interactional offers and subsequently became engaged in a mutual verbal or physical activity. Children's responses to mothers' attempts to engage them in interactions may vary in response to changes in aspects of the interactive patterning. For instance, changes in the mothers' signalling, repetition of maternal speech, reinforcement for interactive engagement, and other factors might cause changes in the children's response patterns.

4. Foregrounding of Expectations for Performance within the Game Format. In order to try to gain more information about why and how particular types of performances were encouraged by mothers in interaction with their children, any explicit foregrounding of the desirability of certain verbal or non-verbal behaviors were extracted from the transcripts. This was to provide some index

as to the types of performances valued by mothers in both contexts.

5. Differences in the Nature of the Game Structure. It had been noted previously that mothers and children seem to engage in two common routine formats; the naming game, through which vocabulary words are rehearsed and displayed, and the "action" game, which provides for practice and performance of physical skills. Differences which might exist across conditions or social class in structuring and sequencing within the game format were examined for all mother-child pairs.

V. Additional Analyses

The following additional analyses were carried out in order to further specify aspects of the mother-child interaction in two different contexts.

A. Responses to questions

Responses to questions were categorized as follows:

1. appropriate--where the specific information or behaviors requested was supplied;
2. inappropriate--where some verbal or non-verbal response was made to the question, but where the information supplied was either incorrect or did not relate directly to the question being asked; and

3. no response--where a question was neither verbally nor gesturally responded to.

   (a) Mothers' responses to children's questions--It was thought that mothers' responses, with regard to immediacy of reply and type of information conveyed, would vary with the presence or absence of the experimental observer.

   (b) Children's responses to mothers' questions--It was thought that children's responses to mothers' questions could also vary in response to changes in the interactional context.

B. Taking Possession of Objects

Instances where mother and child took possession of an object from the other member were defined and counted. These consisted of times at which the mother would move to take an object the child was holding and vice versa. It was thought that occasions of taking possession of objects from children might decrease, and that children might be permitted to take objects from the mothers more freely, in the observed condition when the experimenter was present as compared with the unobserved condition.

C. Mixed Messages

Mixed messages were counted as interactions in which the syntactic content of an utterance was in conflict with

the intention behind the utterance as indicated by non-verbal and paralinguistic information.

This analysis involved the assumption that language is, in fact, rule-governed behavior, and that, as Searle (1969) suggests, speaking a language involves the performance of speech acts (i.e. making statements, giving commands, making promises, etc.), and that these must be inferred from the linguistic and non-verbal cues in context as well as from meta-linguistic knowledge of culturally standard speech forms.

CHAPTER III

RESULTS

Reliability of Coding

A total of 137 variables were examined in this study, and will be discussed below. The reliability of the coding was determined through Winer's (1962) method of measuring interjudge reliability for each of the variables measured. Two independent judges plus the experimenter coded 20% of the data collected from each mother-child pair, and a percentage of agreement on each of the variables was then calculated. Observer's interagreement averaged 92%, with a range of 87% to 98% based on the operational definitions described in the previous chapter (see Table 1).

All of the variables were subjected to statistical analysis to determine whether or not there was an effect of the order of presentation of the observed and unobserved condition on the findings. Of the 137 variables examined for sequence effects, in no case was there a statistically significant effect of order.

The following variables were examined for change across the observed/unobserved condition, and across socioeconomic

group within condition, through two-way analyses of variance.

A. Speech Production

1. Quantity of Maternal Speech

As was found previously in Graves and Glick (1978), the quantity of maternal speech produced by mothers in the observed condition was significantly greater than the amount produced in the unobserved condition (see Table 2). For both middle and lower SES mothers, the number of words produced in the observed condition was approximately twice that produced in the unobserved condition. There was a significant main effect of condition ($p < .01$), though there was no significant effect of SES, or interaction between SES and condition.

Consistent with this finding, there was also a significant main effect of condition on the number of utterances produced by both groups of mothers across the observed/unobserved condition.

This increase in speech production in the observed condition reflected the general increase in the overall amount of interaction between mother and child in this context. This was particularly true of the middle SES mothers who were generally more active than the lower SES mothers in the observed condition. In the unobserved condition, there were many more periods of silence, less speech in general and fewer dyadic interactions for both groups. In the observed condition,

the middle-class mothers in particular seemed more performance-oriented.

2. Children's Speech Production

In contrast to the changes in maternal speech with context, children's speech production for both subject groups remained remarkably stable across the observed/unobserved condition (see Table 3). The mean number of words produced by both middle and lower class children was practically identical in the observed and unobserved condition. There were no main effects of condition and/or social class and no significant interaction.

3. Mother's Mean Length of Utterance

Maternal M.L.U. showed both a main effect of SES ($p < .001$) and an interaction effect between SES and condition ($p < .001$). The direction of the change in maternal M.L.U. across conditions was in opposite directions for the two different SES groups.

For the middle-class mothers, the mean M.L.U. in the observed condition was 2.99 as compared with 3.78 in the unobserved condition. Individual comparison in post hoc analysis found this difference to be significant ($p < .01$).

For the lower-class sample, mothers' mean M.L.U. in the observed condition was 2.91 as compared with 2.49 in the unobserved condition. Though M.L.U. for both groups of mothers

was comparable in the observed condition, in the unobserved condition the mean middle-class M.L.U. was significantly greater than the mean lower-class M.L.U. ($p < .05$).

Another aspect of M.L.U. which was examined in this study was the variability of mothers' speech to the child (see Table 2). Standard deviations for the M.L.U's. of the mothers were used as a measure of the general variability of the mothers' speech to their children. There was both a significant main effect of SES ($p < .001$) and a significant interaction between SES and condition. The middle-class mothers showed less variability in both observed and unobserved conditions than did the lower-class group. In addition, post hoc analysis revealed that the middle-class mothers showed less variability in the mean length of their utterances in the observed as compared with the unobserved condition ($p < .05$).

For the lower class group, the mean standard deviation was slightly higher in the observed condition than in the unobserved condition, though this difference was not statistically significant.

4. Children's M.L.U.

In comparison to the striking differences in mothers' M.L.U. across condition and social class, the M.L.U's. of the children in all conditions and SES groups were, on the average quite consistent (see Table 3). None of the differences was statistically significant--there was no significant main

effect nor was there a significant effect of interaction of SES and condition.

In addition, analysis of the mean standard deviation of M.L.U. for the children showed variability to be very slight. Again there were no statistically significant differences across SES or condition.

B. Analysis of Mother's Utterances

1. Analysis of Syntax

Mother's utterances were analyzed in terms of seven basic syntactic categories and examined for changes across the observed and unobserved condition (see Table 4 and Figure 2). The categories, described in the previous chapter were as follows:

(1) questions,
(2) declaratives,
(3) imperatives,
(4) exclamations,
(5) attention words,
(6) noun phrases, and
(7) verb phrases.

All categories were mutually exclusive, and all speech was coded as belonging to one of these categories.

For the most part, the distribution of utterance types remained quite stable across the observed/unobserved condition.

There were no main effects of condition for any of these variables, nor was there a significant interaction effect, with the exception of the production of questions in maternal speech. The number of questions produced (relative to the total amount of speech production), increased significantly for middle class-mothers in the observed as compared with the unobserved condition. There was a main effect of condition here ($p < .01$), where questions accounted for 43% of the total amount of speech produced by middle-class mothers in the observed condition, as compared with only 30% in the unobserved condition. For the lower-class mothers, questions constituted 21% of their speech in the observed condition as compared with 14% in the unobserved condition.

For questions, imperatives and declaratives, there was also a main effect of SES on the relative production of these speech types. For question production, the differences between the two socioeconomic groups was highly significant ($p < .0001$).

In addition, there were significant differences in the relative production of imperatives between middle and lower class mothers in both conditions ($p < .0001$). In the observed condition, of the total amount of speech produced by the middle-class mothers, only 11% consisted of imperative utterances, whereas imperatives constituted an average of 37% of the lower-class mothers' speech. In the unobserved condition, only 9% of the middle-class mothers' speech was composed of

imperatives, as compared with 37% for the lower-class mothers. Overall, a much higher proportion of the lower-class mothers' speech to their children consisted of imperatives as compared with the middle-class mothers, though the relative production did not change significantly across condition within SES group.

In addition to questions and imperatives, declaratives also showed a significant main effect of SES ($p < .003$), with middle-class mothers producing a greater number of declaratives in both observed and unobserved conditions (see Table 4; Fig. 2).

This syntactic analysis of the mothers' speech was useful in characterizing the general content of the input to the child on the basic grammatical level. One of the things that this analysis revealed was that, although there were differences in the relative production of some of the syntactic types across socioeconomic group, within those groups the distribution of these syntactic types varied very little across the observed and unobserved conditions.

For the middle class mothers, although the proportion of questions posed by the mothers increased somewhat in the observed condition, questions, declaratives and exclamations constituted the majority of the utterance types produced in both the observed and unobserved condition.

In contrast, for the lower-class mothers, imperatives constituted the largest proportion of the syntactic categories in both conditions. Imperatives alone accounted for over 37% of these mothers' speech to their children. The lower-class

mothers seemed to use this direct form much more frequently with their children than did the middle-class mothers. Middle-class mothers made more use of questions and declaratives, and orders were issued to the child in a more indirect form. In general, the middle-class mothers seemed to be less direct about the direction of their children toward desired goals than were the lower-class mothers.

2. Grammatically Complete Sentences vs. Sentence Fragments (See Table 5)

An analysis of the proportion of speech which consisted of grammatically complete sentences of all syntactic types as compared with incomplete sentence fragments showed a significant main effect of condition ($p < .05$). For both groups of mothers, the percentage of fragmentary utterances was greater in the unobserved condition as compared with the observed condition, although the change across conditions was greater for the middle-class mothers.

In the observed condition, approximately one-quarter of the middle-class mothers' speech consisted of sentence fragments, whereas in the unobserved condition, the percentage of fragmentary utterances rose to an average of 32%. For lower-class mothers, the percentage of fragmentary speech was slightly greater in the unobserved condition, and averaged approximately 28% across the two conditions. There seemed to be a general shift toward the production of more grammatically complete

utterances in the observed condition, especially for the middle-class mothers.

C. Nested Pragmatic Categories in Maternal Speech

A systematic analysis of the mothers' speech was then conducted based on the illocutionary force of the maternal utterances. The seven basic syntactic forms discussed in the previous section (declaratives, questions, imperatives, exclamations, attention words, noun phrases and verb phrases) were redistributed into the following three categories:

(1) Topic Comment--where the utterance was being used as a commentary about objects or activities in the environment, or to comment within a conversational context on subject matter which was not present in the immediate environment. For example:

Child: "Dolly."

Mother: "Yes, the dolly is very pretty."

or Mother: "That's right. You are playing with the dolly."

If the topic of conversation was a trip to the park, the child might say, "Merry-go-round," and the mother might comment, "Right. You rode on the merry-go-round with Josh yesterday." These would be considered topic comments.

(2) Directive utterances--Directive utterances were defined as utterances whose communicative intent was to have

the child do something, regardless of its syntactic form. Directives are requests for a verbal or physical response from the child. For example, if the child and mother were working on a puzzle, the mother might use the syntactic form of a question to direct the interaction, for example:

Mother: "Can you put that puzzle piece right here?"
accompanied by a pointing gesture.

On the other hand, the direct imperative form might also be used, for example:

Mother: "Put the puzzle piece in the hole."

(3) Ambiguous--If a particular utterance could not be clearly defined as being either topic commentary or directive in intention, it was placed in the ambiguous category.

Determination of the correct category for an utterance was made on the basis of the following evidence: (a) the context of the utterance (whether or not it occurred within a game sequence framework); (b) gesture (whether or not the utterance was accompanied by a gesture illustrative of intention); (c) repair (whether or not a repair mechanism was instituted if the utterance did not accomplish its intent); (d) intonation and inflection (where the paralinguistic aspect of the utterance would indicate an alternative to the surface structure of that utterance) and (e) social knowledge of how the language is used, knowledge of common alternative meanings and functions of the various syntactic forms (as in the case of indirect directives which appear as questions, but are used

as commands--i.e. "Can you close the window?"). These aspects were involved in producing judgments which were reliably consistent (87%) between three independent coders.

Several analyses were performed once utterances were redistributed into the above three categories. The primary analysis involved the determination of the proportion of topic comment, directive and ambiguous utterances relative to the total number of utterances produced. This included both an overall percentage of each of the nested categories relative to the total number of utterances produced by each subject.

In this primary analysis of the nested pragmatic categories (see Table 6; Fig. 2) the comparison showed striking differences between groups and across conditions. In the overall comparison of the production of topic comment and directive utterances, there were highly significant main effects of both SES ($p < .0001$) and condition ($p < .0001$), as well as a highly significant interaction effect ($p < .0001$). Ambiguous utterances were insignificant, accounting for less than 1% of total speech production. For the middle-class sample, approximately 38% of their total speech production consisted of topic comment utterances and 61% of directive utterances in the observed condition. However, in the unobserved condition, the proportion was almost reversed. Approximately 64% of the middle-class mothers' utterances were topic comments and the remaining 35% directives. Thus, post hoc individual comparisons showed that in the observed condition there was a large increase in the

production of directive utterances (though the syntactic form of these utterances was typically question and declarative rather than imperative) relative to topic-comment utterances. In the unobserved condition, there was an increase in topic-comment production inversely proportional to the distribution in the observed condition ($p < .01$).

For the lower-class mothers, the distribution of utterances into the two main nested categories was quite consistent across conditions. In both the observed and unobserved condition, topic-comment utterances constituted approximately 20% of these mothers' total speech and the remaining 80% consisted of directives. Here, however, the directives were comprised largely of syntactic imperatives. Thus for the middle-class mothers, change in context produced a radical change in the general distribution of utterances, whereas the distribution for lower-class mothers remained fairly consistent across conditions.

In comparing lower and middle class mothers on the two major nested categories, the main SES effect is clear. In both the observed and unobserved conditions, the middle-class mean for topic-comment production was greater than that of the lower-class mothers, in the unobserved condition, the middle-class mothers' production of topic-comment utterances relative to total speech production was almost three times that of the lower-class mothers. Conversely, in the observed condition, middle-class maternal speech contained fewer directive

utterances than speech of lower-class mothers, and in the unobserved condition directives constituted a percentage of total speech twice as great for lower-class as compared with middle-class mothers. Thus, there were marked differences in the amounts of speech falling into these two categories across social class.

These figures and the accompanying tables and graphic representations give some indication of the distribution of pragmatic categories and their syntactic composition in the speech of mothers from these two socioeconomic groups across observed/unobserved conditions, and the manner in which the distribution of these categories changed with context.

Three additional analyses of the pragmatic nests examined 1) each of the syntactic types within each "nested" category relative to the total amount of speech produced; 2) each syntactic category individually to determine the percentage of each syntactic type falling into each of the nested categories (topic comment, directive or ambiguous); and 3) the relative syntactic composition of each of the nested categories, so that the distribution of syntactic types within the topic comment/directive/ambiguous distinctions could be seen. See the Appendix for data and discussion of these detailed analyses.

D. Functional Categories of Speech Production

In addition to the syntactic and pragmatic analyses discussed above, five additional functional categories of mothers' speech were selected for examination. These categories (test questions, indirect directives, positive evaluative comments, negative evaluative comments, and repetitions) had proven interesting both in a previous study by Shatz and Graves (1976) and in the pilot data where the samples consisted solely of white middle-class mother-child pairs. With these subjects, there had been a change across context in the display of these functional categories, which seemed to reflect an overall orientation toward performance in the observed condition. In the present study, the comparison was made between middle and lower class dyads to determine whether the observed changes in these variables were characteristic of the middle-class mothers only, or whether the change was also present in the lower-class displays when the observer was present. Although there were statistically significant results, these variables each constituted only a small percentage of the mothers' total speech production. Because these findings relate to such a small proportion of the total body of speech, results are presented in the Appendix.

E. Non-Verbal Gestures

(See Fig. 1 and Table 7a)

1. Non-Verbal Maternal Gestures

In order to examine the non-verbal aspect of the mother-child interaction, maternal gestures were coded according to the guidelines laid out by Shatz and Graves (1976), as were described in detail in Chapter II, to see if this aspect of the dyadic interaction was context sensitive. Maternal gestures were identified as: (1) presentation; (2) pointing; (3) point-tapping; (4) demonstration; (5) iconic action and (6) tapping.

In the comparison of maternal gestures across condition and social class, there was a significant main effect of condition on the overall production of gesture ($p < .01$) and number of presentations across the observed and unobserved conditions ($p < .02$). In the observed condition, both middle-class mothers and lower-class mothers displayed a significantly greater number of presentations as compared with the unobserved condition. Presentations, a gesture which had been found to be correlated with action games (Shatz and Graves, 1976), accounted for over one third of the gestures produced, and was the gesture most used by mothers of both socioeconomic groups.

Apart from the presentation gesture, there were no significant differences in any single type of gesture produced across conditions or across socioeconomic groups.

It seems from these data that the distribution of non-verbal maternal gestures was quite similar for the middle and lower class mothers in both conditions. Most of the gesturing for both socioeconomic groups consisted of presentations to the child, often as part of a naming or action routine. By placing an object right in front of the child or at eye level chances increase that a child will engage in some action on that object, either verbal or physical. The increase in presentation production in the observed condition for both sets of mothers, may reflect the fact that there was also a significant overall increase in the amount of interaction between mother and child in the observed condition.

Pointing was the next most often-produced gesture. Useful in drawing a child's attention to the activity at hand, or referencing a particular object for vocabulary purposes, the number of pointing gestures was generally greater for middle-class mothers, though this difference was not large enough to be statistically significant.

Point-tapping was a gesture used with any frequency only by lower-class mothers in this sample in the observed condition. Pointing and tapping on an object simultaneously indicates the object clearly and is a salient moving stimulus which could attract the child's attention. In a sense, this is a direct type of gesture, similar in ways to the undisguised use of the imperative form in the speech of lower-class mothers to their children.

Demonstrations were used by both middle and lower class mothers, more in the observed condition than in the unobserved condition, though, again, differences were not statistically significant. Demonstrations allow the child to imitate an action, and might be expected to increase in the observed condition where there are more action games being played.

The numbers of iconic actions and tapping gestures produced by both middle and lower class mothers was insignificant.

Overall, the gestural forms and their distribution within condition were quite similar for the middle and lower class mothers, and there was a general increase in the number of gestures produced in the observed condition where there was more interaction occurring, as compared with the unobserved condition.

2. Non-Verbal Children's Gestures (See Table 7b)

Analysis of children's gestures during mother-child interaction revealed that children had made use of two distinctive gestures: 1) a presentation-type gesture in which an object is picked up and held in the general direction of the mother; and 2) a pointing or indicating-type gesture, where an outstretched arm and hand are used to indicate a particular object to the mother.

Specific gestures by children were used relatively infrequently, and there were no significant differences in

children's production of these gestures either across condition or socioeconomic class.

F. Interactional Sequences (See Table 8)

1. Types of Interactional Sequences

Many researchers have noticed the incidence of routines and structured game sequences in interactions between mother and child (Bruner, 1974; Miller, 1980; Thomas, 1979), but few have looked at the production of these sequences in relation to the effect of context. On the basis of the current study, it appears that these routines are more frequently produced when an audience was present than when dyads were alone.

Mother-child interaction time was divided into five mutually exclusive categories: action games, naming games (two routinized patterns of mother-child interaction described in detail in the previous chapter), periods of no joint focus of attention (in which mother and child are not jointly engaged in any mutual activity), transition periods (in which the nature of the next interaction was being negotiated), and conversation (non-directive discussion of a topic).

a. Periods of No Joint Focus

There was both a main effect of condition ($p < .002$) and a main effect of socioeconomic status ($p < .05$) on the average relative amount of time spent with no joint focus of attention

as opposed to some form of interaction. The middle-class mother-child pairs were found to spend a significantly greater amount of time in periods with no joint focus in the unobserved condition (20%) as compared with the observed condition (2%). Similarly, for the lower-class mothers, though the overall amount of time spent with no joint focus was greater than that of middle-class dyads in both conditions, there was a significant decrease in the amount of time spent with no joint focus of attention between mother and child in the observed condition (13%) relative to the unobserved condition (31%).

Periods of no joint focus of attention were much more prevalent in the unobserved condition than in the observed condition for both subject groups. During these periods, mother and child were not mutually engaged in any interaction. Often, during these times the child played with a toy, while the mother was either involved in her own play project, or just sitting silently. Often the child would attempt to involve the mother in his or her play, either physically or verbally, though often, in the unobserved condition, the mother would not respond. On one occasion, when the dyad was not aware of the observer, a middle-class child repeated the phrase "Seesaw, Mommy" seven times, while waving a toy seesaw in the mother's direction, before he was able to secure the mother's attention. The mother, who had been working alone on a puzzle, finally looked up and said, "Yes, seesaw. Mommy's busy now." In the observed condition, this same mother

actively tried to engage her child in game sequences. When vocabulary words were offered by the child, the mother would "pick up" on them and move the interactions into name game sequences, something which happened much less frequently in the unobserved condition.

b. Naming and Action Sequences

Conversely, there was also a significant effect of condition ($p < .003$) on the production of naming and action game sequences. For middle-class mothers, the amount of time spent in naming and action games increased significantly in the observed condition (79% of interaction time) as compared with the unobserved condition (59%). For the lower-class mothers, an average of 70% of the interaction time consisted of naming and action games in the observed condition as compared with only 52% of the time in the unobserved condition.

Overall, action games accounted for the greatest amount of interaction time for dyads from both socioeconomic groups, though production of both action and naming games increased significantly in the observed condition. Naming game sequences occurred less than half as often as action games. However, it was the naming game sequences which increased most dramatically in frequency with the presence of the observer. Naming objects was apparently considered appropriate interactional display for the observer's benefit by both middle and lower class groups, though the style of the game playing was somewhat

different among the two groups.

c. Transition Periods

Transition periods, where there was active negotiation of the type of activity to engage in between mother and child, took up approximately 17% of the interaction time for both sets of mothers and did not change significantly with the change in condition. This seems to be a consistent and on-going part of the mother-child interaction, involving, in both contexts, the ongoing planning process for the staging and construction of activities.

d. Conversational Sequences

What might be termed "conversation" about a topic occurred between mother and child very infrequently for middle-class dyads, and was practically non-existent in the lower-class mother-child interactions. This may, in fact, be appropriate for these children's developmental level. Conversations about subjects which are not concretely visible in the surrounding area, or extended talk about some abstract properties of objects, should be difficult for a two-year old child whose learning has come, to a great extent, from concrete interactions with objects in the world. The fact that middle-class mothers do provide some limited opportunity for their children to try to engage in conversational production, may be a way of encouraging the child to try to master this new form. Snow (1980) suggests that it is necessary for children

to be provided with speech forms and contents which are not only semantically contingent to their processing abilities, but also with material that is a bit difficult for them, in order to elicit the assimilation of new forms.

2. Length of the Sequences

Analysis was performed on naming and action game sequences, measuring the length of these interactional routines in terms of the mean number of rounds per game for each of the mother-child pairs (see Table 9a). For action game sequences, there was found to be significant main effect of SES ($p < .0001$) and condition ($p < .02$). In comparing socioeconomic groups, it was found that in both the observed and unobserved condition, the mean number of rounds was significantly greater for the middle-class as compared with the lower-class dyads. In the observed condition, middle-class pairs produced a mean of 3.53 rounds per action game as compared with 1.64 for the lower-class group. In the unobserved condition, the middle-class pairs produced a mean of 2.82 rounds per action game as compared with 1.30 for the lower-class group. It was also noted that the lower class dyads had a much greater incidence of having game sequences prematurely terminated, where there was a large number of games that lasted for only one round or less. In contrast, this was a rare occurrence among the middle-class sample.

Middle-class pairs also had a mean number of rounds for the naming games which was greater than that produced by lower-class pairs, though the difference here was not statistically significant, probably due to variability. In the observed condition, middle-class subjects produced an average of 3.57 rounds per naming game sequence as compared with only 1.62 rounds for the lower class group. In the unobserved condition, middle-class dyads produced a mean of 3.03 rounds for name games as compared with 1.49 for the lower-class. Again, for the lower-class dyads many of the game sequences were terminated prematurely after only one round.

Through engagement in and practice with this type of interactive activity with the mother, the child can be guided through a series of verbal responses or actions on objects, which can then be repeated and varied in new rounds of the same interactional game. These schematic packages can then be retrieved and produced later on, either for rehersal or display purposes, which seems to be the case among middle-class mothers in the observed condition. The fact that the middle-class mothers and children did present action or naming games for display more frequently in the observed condition, and developed those games through an average of 3 1/2 rounds per game, may be evidence that these game sequences were familiar formats between mothers and children from this socioeconomic group.

The number of rounds per naming and action game sequence was also examined as a function of whether the "game" was initiated by mother or child (see Table 9). Though there was again a significant effect of social class ($p < .01$) and condition ($p < .03$) in comparison of all mother-initiated games and all child-initiated games taken separately, there were no statistically significant differences between mother and child-initiated games within each social class group. Although the actual initiator of the game did not seem to have a great effect on the number of rounds in that game, there was a trend among the middle-class dyads toward slightly longer child-initiated game sequences in the observed condition, when compared with the mother-initiated sequences.

3. Observed Differences in the Nature of the Game Structure

Though both lower and middle class dyads engaged in naming and action games, the format and execution of those games seemed to differ somewhat between the two groups on the basis of a number of features.

In addition to the differences in the number of rounds in the games, as previously described, there were a large number of "aborted" games, which seemed to be prematurely terminated among mothers and children of the lower-class sample in both conditions. Typically, the mother might

initiate a naming game by asking a question about an object in the room, the child would respond often with an incorrect answer, and the mother would not take another turn in the interaction. The child's response would neither be repaired nor validated. In these cases the mothers had apparently lost interest in the game, or had become involved with another activity by the time the child answered, and the game went no further. The children of these lower-class mothers usually did not repeat their responses nor try to recapture the mother's attention.

In contrast, the middle-class mothers and children usually pursued a game, once initiated, until the child had lost interest or would no longer respond, particularly in the observed condition.

In addition, a number of mother-child pairs among the lower-class group exhibited a variant of the game format which had been identified previously among the middle-class mothers with children of language-learning age in the Graves and Glick study (1978). Rather than the mother being the primary initiator of the questioning, as in the name and action games of the middle class mothers and children, the lower-class children frequently assumed the role of questioner. For example

Child: What's this?

Mother: A kitty-cat.

Child: This? (presenting object to mother)

Mother: A bow-wow.

It very often seemed to be up to the child, among the lower-class dyads, to engage the mother in play.

4. Foregrounding of Expectations for Performance

On occasion, there was an overt statement, or direct foregrounding, of the kinds of performances expected from the child, particularly in the tapes of the lower-class dyads. Some directive statements seemed to indicate that speaking or playing alone would satisfy the lower-class mothers' requirements for adequate performance in the observed condition. Statements like speaking, repeating the mothers' utterances, playing alone and reciting the numbers or alphabet, were the most frequently foregrounded directives for the lower-class mothers, and particularly in the observed condition. "Say your numbers," or "Sit quietly and play," were common directive forms for the lower-class mothers.

For the middle-class mothers, though their requirements for good performances were seldom foregrounded or stated outright as directives, there seemed to be some value to having the child answer questions accurately, perform manual tasks with facility, and interact constantly in a reciprocal manner with the mother in the presence of an observer. This was evidenced by the shift in the amount and types of interaction engineered by the middle-class mothers in the observed condition. One middle-class mother in the observed condition expressed her

chagrin that her child was requesting his bottle and no longer wanted to perform, responding, "You want your bottle? You don't need your bottle . . . . Not now when you have so many toys to play with. Why don't you play for a while longer?"

The middle-class mothers' techniques were more often to initiate games and steer their children by using indirect directives rather than the direct imperative form used by the lower-class mothers. In addition, the middle-class mothers worked toward presenting an interactional display between mother and child, particularly in the observed condition, rather than involving the child in solitary play. A middle-class mother would be more apt to ask her child, "Wouldn't you like to play blocks with me?" in order to begin a game sequence with him, whereas a lower-class mother might simply say, "Go play with the blocks." Though both mothers would be issuing directives to their children, the middle-class mothers tended to be indirect and dyad-oriented, where the lower-class mothers were more likely to issue orders directly.

5. Initiations of Interactions (See Table 10)

a. Attempts at Initiation

The number of times mothers and children attempted to initiate interactions with each other was recorded for both

middle and lower class pairs in the observed and unobserved condition. These initiation attempts took the form of either a verbal or gestural floor offer to play or speak. For example, an invitation to play might be stated outright (i.e. "Why don't we play house?") or could take the non-verbal form of offering a toy or indicating an available activity.

(1) Mothers' attempts at initiating interaction. In examining mothers' attempts at initiating interactions with their children, there were two main effects: socioeconomic class ($p < .003$) and condition ($p < .03$).

For middle and lower class mothers, far more attempts to initiate interactions were made in the observed condition as compared to the unobserved condition, though initiations within condition were also significantly different for the two SES groups. For the middle-class mothers, an average of 17.4 attempts to initiate interaction were made in the observed condition as compared with only 5.4 in the unobserved condition. For the lower class mothers, a mean of 11.1 attempts was made in the observed condition, as compared with 4.3 in the unobserved.

For both middle and lower class mothers, attempts to initiate interactions with their children increased significantly in the observed condition. However, the increase was much greater among the middle-class mothers who approximately tripled the number of initiation attempts when they were aware

of the observer's presence. In the observed condition, lower-class mothers doubled the number of initiations they attempted in the unobserved condition. For both groups, the observed condition appeared to be a context in which there was an expectation on the part of the mothers that a display of more interactive contact was desirable.

(2) Children's attempts at initiating interaction (see Table 10). Children's attempts at initiating interaction were extremely consistent both across condition and across socioeconomic status. There were no significant statistical differences, and children in both groups and in both conditions averaged between seven and eight attempts at initiating interactions with their mothers.

b. Responses to Initiation Attempts (See Table 11)

Responses to mothers' and children's attempts at initiating interactions were coded as either positive or negative, depending on whether the initiation attempt was acknowledged and followed by participation in the interaction by the other member of the dyad, or whether the attempt went unheeded.

(1) Mothers' responses to children's attempts at initiation of interaction. There was a main effect of SES ($p < .03$) and a main effect of condition ($p < .04$) on maternal responses to children's attempts at initiating interactions. For middle-

class mothers in the observed condition, the child's attempts at initiating interactions were responded to positively an average of 85% of the time, as compared to only approximately 60% positive maternal responding to the child's initiation attempts in the unobserved condition.

For the lower-class mothers, however, the responses to the children's attempts at initiating interaction were very consistent across the observed/unobserved condition. Attempts were responded to positively an average of 58% of the time in the observed condition, and 56% of the time in the unobserved condition. This rate of positive responding was both lower and more consistent than that of the middle-class mothers.

The difference between the middle-class mothers, who significantly increased their responsiveness to the children's attempts at engaging them in interactions in the observed condition, and the lower-class mothers who responded positively to about 60% of their children's initiation attempts in both conditions, seems to indicate again that for the middle-class mothers, part of an appropriate display for the experimenter seems to involve interactional "give and take" with the child. Not only are the offers for play increased, but the child's requests for interactive contact are acknowledged and responded to more quickly when the mothers were aware of being observed.

The lower class mothers also seemed to perceive the presence of the observer as cause for increasing their child's activity level, but not necessarily interactively. The

increase in attempts at initiating interaction in the observed condition goes along with their use of imperatives. These mothers are more likely to order their children to play, to get the child started on a play project and then withdraw from the game, or to get the child to produce certain traditional ritualized performances, such as counting or saying the alphabet. The mothers role in the lower-class group seemed to be more as a director and initiator, than as an interactive participant with the child, and the children's attempts at getting their mothers involved in a game of their own choosing often went unheeded.

(2) Children's responses to mothers' attempts at initiating interactions. There were no significant differences in children's responsiveness to the mothers' attempts at initiating interactions, either across social class or across condition. The responsiveness of the children was quite variable from subject to subject and probably depended on the child's history and a multiplicity of other factors.

6. Responses to Questions in Mother-Child Interaction (See Table 12)

Responses to questions posed by both mother and child during the interaction periods were coded into one of three categories: 1) no response--where the question was ignored, and no verbal or nonverbal response was provided; 2) correct

response--where the question was responded to with appropriate and accurate information or action; and 3) inappropriate response--where the question was responded to, but the response provided did not answer the question accurately and/or provide the requested action.

a. Maternal Responses to Children's Questions

When maternal responses to children's questions were analyzed, there was a significant interaction effect for the relative amount of correct maternal responses produced ($p < .002$), for the relative amount of inappropriate maternal responses produced ($p < .05$), and non-responding ($p < .003$).

Middle-class mothers responded correctly an average of 85% of the time when they were aware of being observed, as compared to only 39% of the time in the unobserved condition. The lower-class mothers responded to their children's questions correctly an average of 55% of the time in the observed condition as compared with 29% correct responses in the unobserved condition. Post hoc analysis showed significant differences between means for middle and lower class mothers across condition ($p < .01$), and between correct responses in the observed condition ($p < .01$).

In the category of inappropriate responses, in the observed condition, middle-class mothers responded to only 9% of the children's questions inappropriately, as compared to 28% inappropriate responses in the unobserved condition. Lower-class mothers responded inappropriately 21% of the time in the

observed condition, as compared with 32% of the time in the unobserved condition. The differences across condition for both groups were significant ($p < .01$) as were differences between groups in the observed condition only ($p < .01$).

Questions received no response from middle-class mothers an average of 7% of the time in the observed condition, as compared with 32% of the time in the unobserved condition. For lower-class mothers, the change was not as dramatic. They did not respond at all to children's questions 24% of the time in the observed condition and 39% of the time in the unobserved condition. Once again post hoc analysis revealed significant differences in mothers' means across condition ($p < .01$) and between SES groups in the observed condition, but responses in the unobserved condition were similar.

In sum, middle-class mothers changed their pattern of responding drastically from the unobserved to the observed condition. They dramatically reduced the number of inappropriate responses and non-responses when they were aware of being observed, and increased their correct responding to the children's questions. For the lower-class mothers, changes were in the same direction as for the middle-class mothers, but of a lesser magnitude. There was a much greater percentage of questions which were either inappropriately responded to, or not responded to in the observed condition, than was present among the middle-class mothers, and the percentage of questions responded to correctly in the observed condition was much lower

than the middle class response rate in this condition.

In the observed condition, the middle-class mothers appeared responsive and interested in answering their children's questions clearly and correctly. Though the lower-class mothers also moved in this direction, it seemed as if the emphasis on this type of production was not as great. Non-responding and inappropriate responding was to some extent allowable in the observed condition. In addition, sometimes they did not appear to have the correct information with which to respond to the child's questions. At one point, a lower-class child asked his mother to identify a zebra, and the mother replied that she thought the animal was a horse, and that the child should stop bothering her. The lower-class mothers also did not abandon involvement in their own play materials to the extent that the middle-class mothers did in the observed condition, and often did not take the time to answer a child's questions and stop their own activity. It seemed to be an expected part of the behavioral display for both sets of mothers in the observer's presence to be more attentive to the child's requests for information and/or activity, but to a lesser extent for the lower-class than for the middle-class mothers.

However, in the unobserved condition, the response patterns for the middle and lower-class mothers were quite similar. This reflected the tendency on the part of mothers

from both socioeconomic groups to be less involved with their children and more preoccupied with their own activities when they were not aware of the observer.

b. Children's Responses to Mothers' Questions

There were no significant main effects and no interaction effect of either condition or socioeconomic class on children's responses to mother's questions. Again children's responding was consistent across SES group and condition.

7. Other Descriptive Aspects of the Mother-Child Interaction

Three further aspects of the nature of mothers' speech to their children were observed. These were 1) mixed messages (where the content of an utterance conflicted with the intention behind that utterance); 2) telegraphic speech (where a condensed or truncated variant of standard English was used); and 3) the presence of alternative syntactic forms (non-standard speech forms). However, these categories of speech each constituted less than 5% of the total speech production, and seemed to constitute only a minor part of the mother-child interaction.

One additional analysis of the maternal taking possession of objects from the child across conditions was conducted. This

too accounted for a very small portion of the interaction between mother and child.

Data for these four descriptive analyses are displayed and discussed in the Appendix.

Table 1

Reliabilities (Percentage agreement between experimenter and two independent coders on all variables)

Variable Group	Inter-rater reliabilty
1. Maternal speech production	98%
2. Children's speech production	91%
3. Syntactic Analysis of Maternal utterances	96%
4. Division of Syntactic Types into nested categories	87%
5. Division of maternal utterances into four functional categories	91%
6. Notation of maternal gestures	93%
7. Attempts at initiating interactions	89%
8. Responses to interaction initiations	94%
9. Interactional sequences (Name game, action game, transition, conversation, and periods of no joint focus)	89%
10. Rounds in naming and action games	92%
11. Maternal responses to children's questions	96%
12. Taking possession of objects	93%
13. Mixed messages	86%
14. Telegraphic speech	94%
15. Aggression in maternal speech	96%
16. Foregrounding of expectations	88%
17. Analysis of game sequence format	89%

Note: Reliabilities are based on the mutual coding of 20% of all transcripts. Any disagreements in coding were discussed until agreement was reached. Mean reliability for all variables = 92%.

Table 2

Maternal Speech Production

Middle Class

	Mean # Words	Mean # Utterances	(MLU) Mean Length of Utterance	Mean Standard Deviation of MLU
Observed	529	157.1	2.99	1.64
Unobserved	332	103.8	3.78	1.98

Lower Class

	Mean # Words	Mean # Utterances	(MLU) Mean Length of Utterance	Mean Standard Deviation of MLU
Observed	572	182.5	2.91	2.78
Unobserved	370	133.5	2.49	2.65

Main effect of condition for Mean # Words ($p < .01$)
Main effect of condition for Mean # Utterances ($p < .01$)
Main effect of SES ($p < .001$) and Interaction ($p < .001$) for M.L.U.
Main effect of SES ($p < .001$) and Interaction ($p < .001$) for S.D. of M.L.U.

Table 3

Children's Speech Production

Middle Class

	Mean # Words	Mean # Utterances	MLU	Mean S.D. of MLU
Observed	121	66.7	1.6	.75
Unobserved	128	68.1	1.9	.67

Lower Class

	Mean # Words	Mean # Utterances	MLU	Mean S.D. of MLU
Observed	130	79.7	1.5	.69
Unobserved	138	80.1	1.6	.71

No statistically significant differences

Table 4 (See Figures 2a and b)

Syntactic Analysis of Maternal Speech (Production of syntactic types in relation to total speech production)

Middle Class

	Questions	Declaratives	Imperatives	Exclamations	Attention words	Noun phrases	Verb phrases
Observed	43%	24%	11%	13%	3%	5%	2%
Unobserved	30%	30%	9%	17%	3%	7%	3%

Lower Class

	Questions	Declaratives	Imperatives	Exclamations	Attention words	Noun phrases	Verb phrases
Observed	23%	15%	37%	12%	5%	7%	1%
Unobserved	17%	16%	37%	16%	5%	9%	1%

Main effect of condition ($p < .01$) and SES ($p < .0001$) for production of Questions
Main effect of SES for production of Imperatives ($p < .0001$)
Main effect of SES for production of Declaratives ($p < .003$)

Table 5

Proportion of Grammatically Complete and Incomplete Utterances (Relative to total speech production)

	Middle Class	
	Grammatically complete sentences	Sentence fragments
Observed	79%	21%
Unobserved	68%	32%

	Lower Class	
	Grammatically complete sentences	Sentence fragments
Observed	71%	29%
Unobserved	69%	31%

Main effect of condition on production of complete sentences ($p < .04$) and sentence fragments ($p < .05$)

Table 6 (See Figure 3)

Nested Pragmatic Categories in Maternal Speech

	Middle Class	
	Topic Comment	Directive
Observed	38%	61%
Unobserved	64%	35%

	Lower Class	
	Topic Comment	Directive
Observed	23%	77%
Unobserved	20%	79%

Main effect of condition ($p < .0001$), SES ($p < .0001$) and an interaction effect ($p < .0001$)

Table 7a

Non-Verbal Maternal Gestures (See Figure 1)

(Mean Number of Gestures per Session)

Middle Class

	Presentation	Pointing	Point-Tapping	Demonstration	Iconic Action	Tapping
Observed	13.0	6.3	1.1	7.4	0.1	0.5
Unobserved	7.2	3.6	0.6	4.7	0.0	1.4

Lower Class

	Presentation	Pointing	Point-Tapping	Demonstration	Iconic Action	Tapping
Observed	17.3	7.6	3.9	12.4	0.0	0.5
Unobserved	9.5	8.5	0.9	7.7	0.4	0.2

Main effect of condition on number of presentation gestures ($p < .02$)

Table 7b

Non-Verbal Children's Gestures

(Mean Number of Gestures per Session)

	Middle Class	
	Presentation	Indication
Observed	5.1	3.2
Unobserved	7.3	3.4

	Lower Class	
	Presentation	Indication
Observed	6.6	2.8
Unobserved	5.9	4.1

No significant differences

Table 8

Interactional Sequences--Relative Temporal Divisions

	Middle Class				
	Action Games	Naming Games	No Joint Focus	Transition	Conversation
Observed	54%	25%	2%	14%	5%
Unobserved	42%	17%	20%	18%	3%

	Lower Class				
	Action Games	Naming Games	No Joint Focus	Transition	Conversation
Observed	52%	18%	13%	16%	1%
Unobserved	42%	10%	31%	17%	0%

Main effect of condition ($p < .002$) and SES ($p < .05$) on time spent with No Joint Focus of Attention

Main effect of condition ($p < .03$) on production of Game Sequences (Naming and action combined)

Table 9a

Mean Number of Rounds in Naming and Action Game Sequences

	Middle Class	
	Naming Games	Action Games
Observed	3.57	3.53
Unobserved	3.03	2.82

	Lower Class	
	Naming Games	Action Games
Observed	1.62	1.64
Unobserved	1.49	1.30

Main effect of condition for length of games ($p < .02$)
Main effect of SES for length of game ($p < .0001$)

Table 9b

Mean Number of Rounds for Mother-Initiated and Child-Initiated Game Sequences

	Middle Class	
	Mother-Initiated	Child-Initiated
Observed	3.21	3.92
Unobserved	2.84	3.11

	Lower Class	
	Mother-Initiated	Child-Initiated
Observed	1.76	1.53
Unobserved	1.28	1.51

Main effect of SES ($p < .01$) and Condition ($p < .03$) within mother-initiated and child-initiated game sequence categories.

No statistically significant differences in comparing mother-initiated and child-initiated games.

Table 10

Attempts at Initiating Interaction

(mean number of initiation attempts)

Middle Class

	Mothers' Initiation Attempts	Children's Initiation Attempts
Observed	17.4	8.5
Unobserved	5.4	8.5

Lower Class

	Mothers' Initiation Attempts	Children's Initiation Attempts
Observed	11.1	7.8
Unobserved	4.3	7.1

Main effect of condition ($p < .03$) and SES ($p < .003$) on M.'s Initiations

Table 11

Responses to Attempts at Initiating Interactions

	Middle Class			
	Mother's percentage positive responses	Mother's percentage negative responses	Children's percentage positive responses	Children's percentage negative responses
Observed	85%	15%	49%	51%
Unobserved	60%	40%	51%	49%

	Lower Class			
	Mother's percentage positive responses	Mother's percentage negative responses	Children's percentage positive responses	Children's percentage negative responses
Observed	58%	42%	48%	52%
Unobserved	56%	44%	53%	47%

Main effect of condition ($p < .04$) and SES ($p < .03$) on maternal responses to child's initiations

Table 12

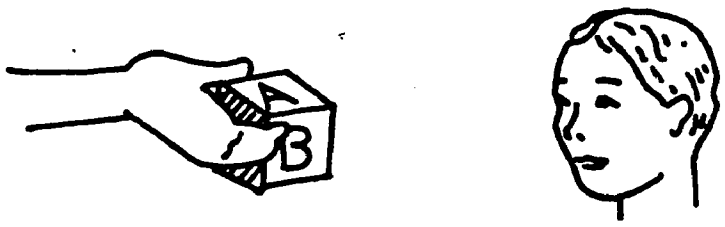
Maternal Responses to Children's Questions

	Middle Class		
	Correct	Inappropriate	No Response
Observed	84.8%	8.6%	6.6%
Unobserved	39.4%	28.3%	32.3%

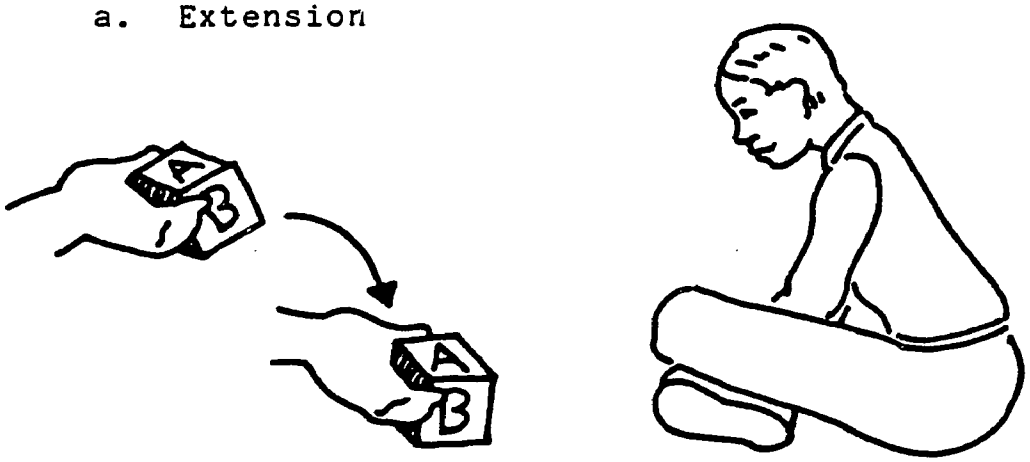
	Lower Class		
	Correct	Inappropriate	No Response
Observed	54.6%	21.5%	23.9%
Unobserved	29.1%	32.3%	38.6%

Interaction effect for relative number of correct maternal responses ($p < .002$) and inappropriate maternal responses ($p < .05$) and no responses ($p < .003$)

PRESENTATIONS:



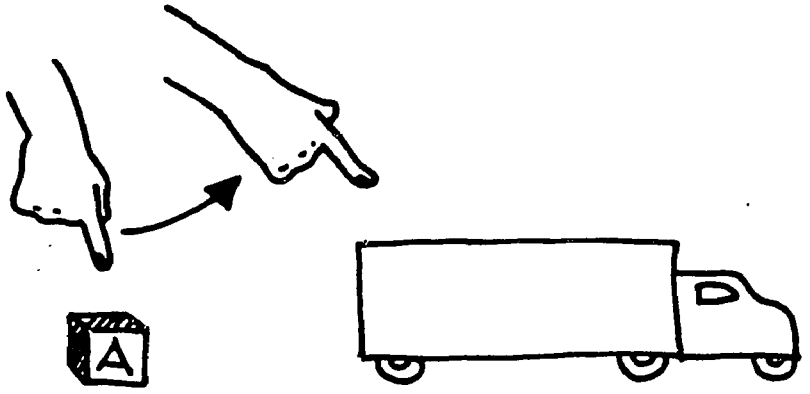
a. Extension



b. Direct Placement

Fig. 1--Illustration of Gestural Categories

ICONIC ACTION: "Put the block in the truck"



DEMONSTRATION OF ACTION: "Put the block in the truck"

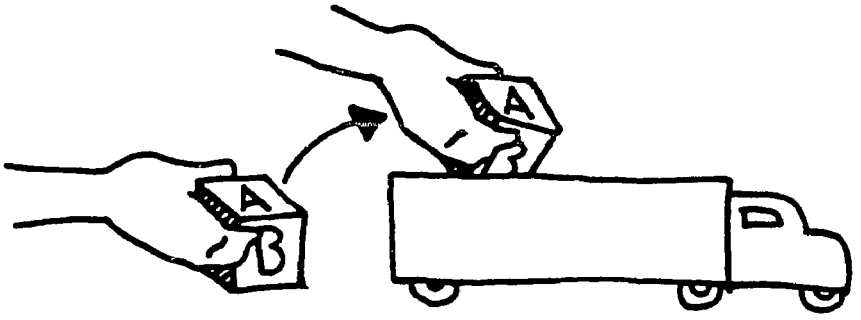
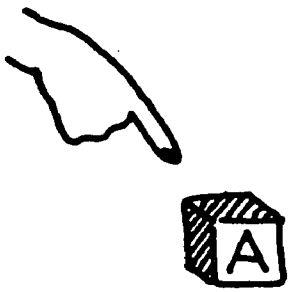


Fig. 1, cont'd.

POINTING:



POINT-TAPPING:

TAPPING:

Fig. 1, cont'd.

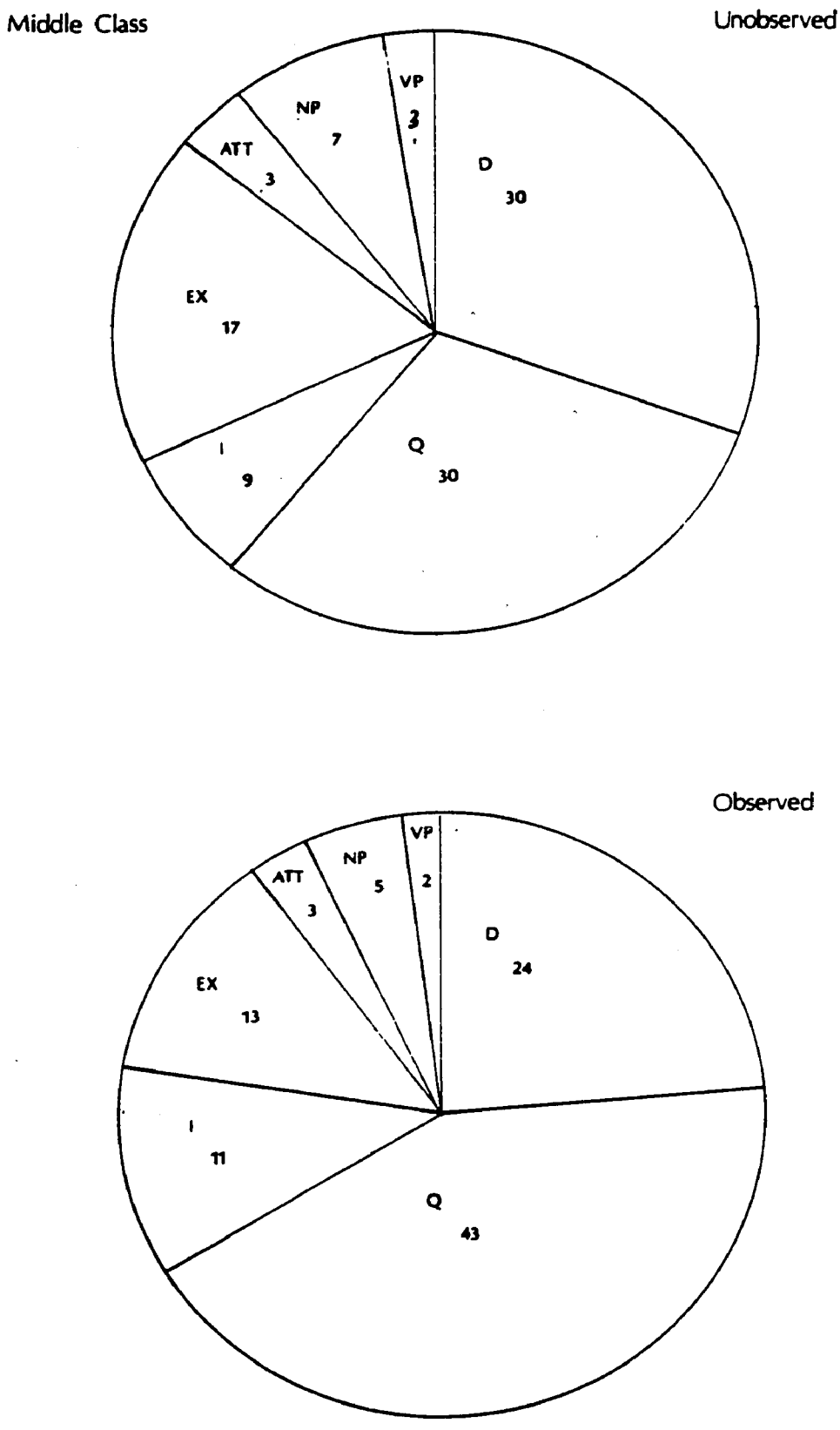


Fig. 2a--Syntactic analysis of maternal speech, middle class. See Table IV.

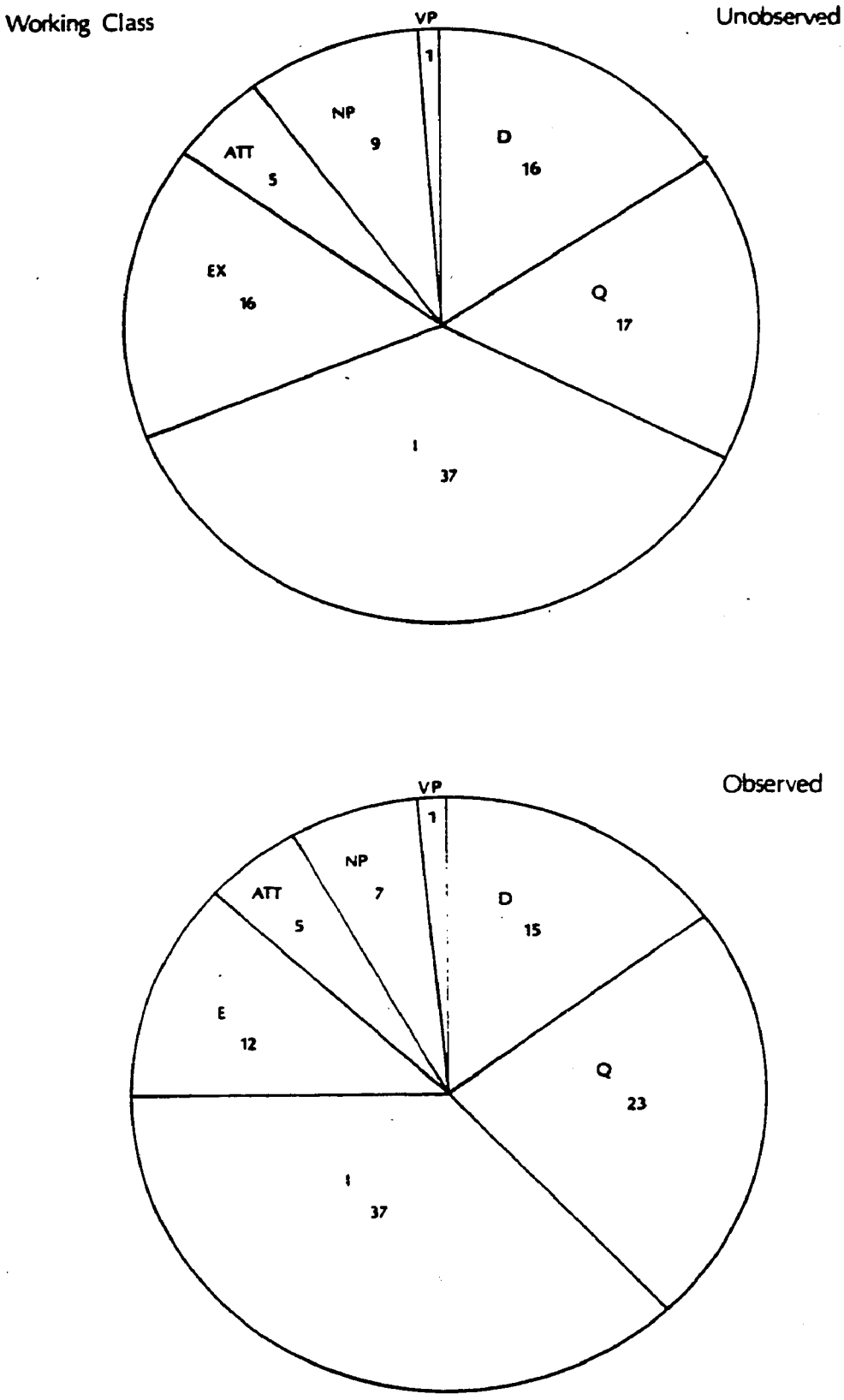
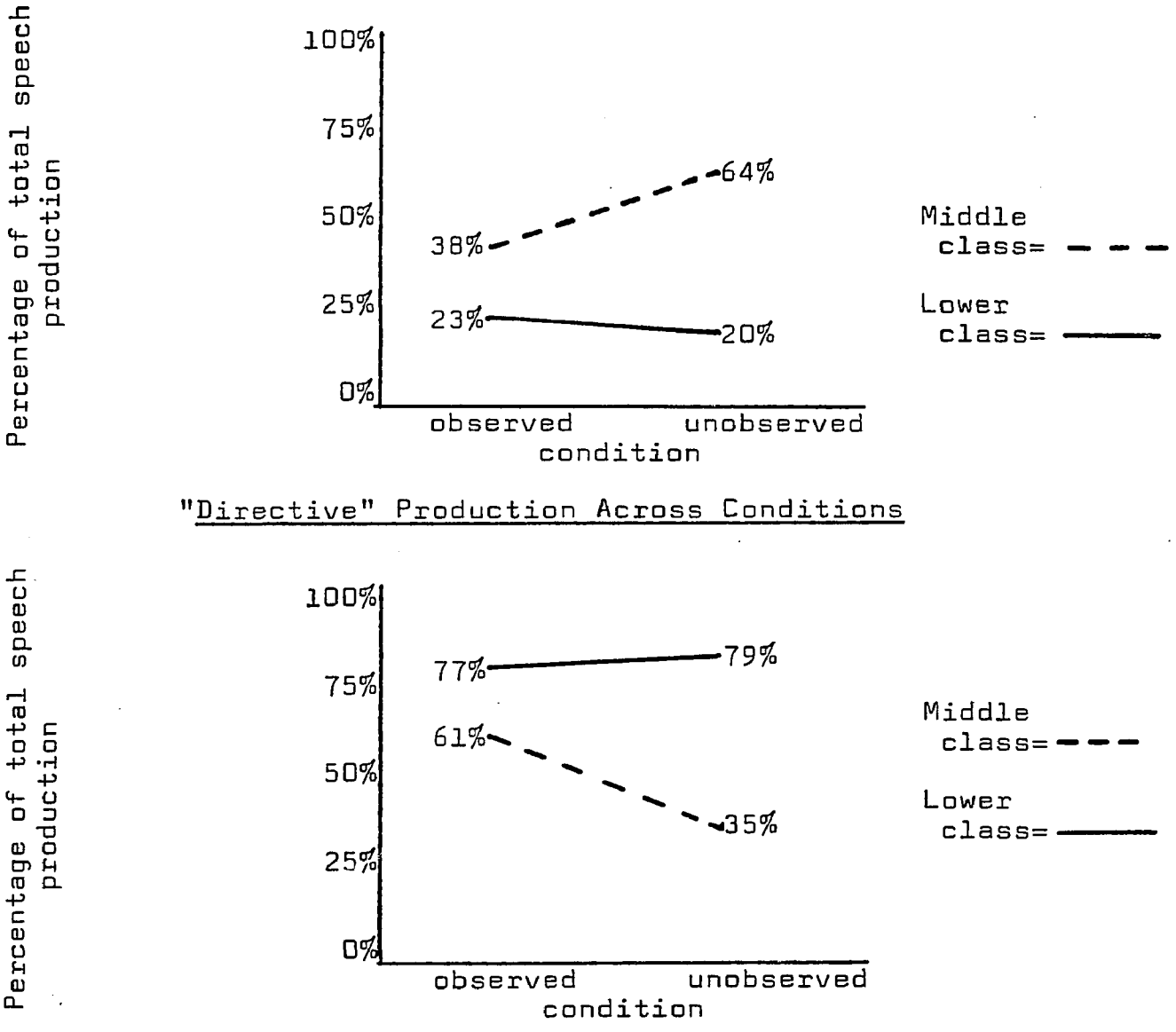


Figure 2b. Syntactic analysis of maternal speech, lower class. See Table VI.

Figure 3

Graphic Representation of Nested Pragmatic Categories in Maternal Speech

(See Table 6)



CHAPTER IV

DISCUSSION

Language learning must, in some way, be dependent on the linguistic environment since children do, in fact, learn the particular language they hear. Specifying the structural and semantic aspects of the environmental input, the child's external resources for the language learning task, is a logical place to start investigating the language acquisition process. However, this study has pointed out the importance of accounting for the interactional context within which language occurs, as well as for the characteristics of the language itself, in attempting to characterize the nature of input to the child in mother-child interaction. When the observer is present, behaviors seem to change and interactions are steered in a particular direction according to what is deemed an appropriate display by mothers from each socio-economic group.

These findings pose a problem for some of the work on mother-child interaction that attempts to characterize the nature of the interaction without consideration of the experimental social context. Child language researchers,

aware of the need for the richest possible information, usually convince themselves that the effect of their presence is minimal (Wells, 1980). However, it must be taken into account that the presence of an experimental observer sets up a context in which mothers try to put their "best foot forward" according to what they feel is appropriate and advantageous in the particular situation. Generalizations about the overall developmental milieu of a child, or children in general, seem unwarranted solely on the basis of data collected with an observer present.

Second, this study points out that there were some differences in interactive patterns negotiated between mothers and children of the two socioeconomic groups, which could lead to some differential performances among the children as they enter the world. However, it was also found to be the case that middle and lower class mothers were often quite similar in their interaction style in the unobserved condition. It may be that white middle-class mothers utilize interactional strategies for displays of "good mothering" in the observed condition that mesh with the experimenter's expectations of what good mothering should entail. Where socioeconomic backgrounds may differ between experimenter and subject, there may be a difference in expectations and strategies for dealing with the world. Many experimenters do not attend to the contextual variations which might be effecting the nature of the behaviors displayed in mother-child interaction, and draw

conclusions about the quality and quantity of these interactions on the basis of what appears to be specialized performances displayed for the benefit of the observer. Differences in the observed interactive patterns of dyads from differing socioeconomic groups may be partially a function of differential values in performances for a given audience. The contexts from which data are typically obtained may be both non-spontaneous and highly specific, and results may be distorted by the differential responses of the two groups to task situations and their differential perception of task demands.

Finally, in an interactive situation, the child is always learning more than what the adult may be intending to teach, and one thing that the children may be picking up is the nature of requirements for a good performance when the interpersonal audience creates a formal context. For the middle-class children, this seems to involve the construction of an interaction with the mother in which both members are actively involved and mutually responsive within routinized formats. For the lower class, the performance seems to involve a display of some of the conventions of child knowledge, (recitations of alphabet, numbers, etc.) and within a different interactional format from that of the middle-class mother and child.

The children's responses on all measures were quite consistent both across condition and across social class, and

as Wells (1980) has indicated, there seems to be a central core of language which young children acquire in a regular order, the only important type of variation being the rate of acquisition. He notes, however, that from an early age there develops a range of options within each child's linguistic repertoire from which selection is habitually made and an increase in the frequency with which specific interactional options are selected. This variation has not been shown to be attributable to any gross demographic variables, but rather seems to be the outcome of patterns of habitual events that are treated as socially salient by caretakers and made the subject of conversation in the daily lives of particular families.

Differences in interactional repertoires may, in turn, effect children's functioning if they enter a traditional middle-class oriented school system, and experience a mismatch between their own and the teachers' conception of what constitutes an appropriate or acceptable format for the presentation of information. Different children clearly come into the classroom situation with different preparations and different sets of interactive strategies (Cazden, 1970). Since children obviously acquire their early interactional heuristics in the home situation, the way in which mothers alter their behaviors across contexts is likely to effect the child's understanding of the behavioral changes that are expected by teachers in formal contexts like the classroom.

A. Variables that Changed with Context

There were many aspects of the mother-child interaction which were found to vary significantly with context. In some cases the change was in the same direction for both middle and lower socioeconomic groups, and in others the production of certain aspects of the interactive behavior was inversely proportional for middle and lower class samples. All of the following aspects of the mother-child interaction were displayed differentially by both SES groups in the observed as compared with the unobserved experimental condition.

1. Speech Production and Utterance Production

The number of words and utterances produced was found to be significantly greater in the observed condition, for both lower and middle class mothers, than in the unobserved condition. This had been one of the striking findings in the pilot work of Graves and Glick (1978) among middle-class mothers in interaction with their children. The present study both replicated the previous finding and determined that increased verbal production was also an aspect of performance in the observed condition for lower SES mothers.

This increase in verbal activity accompanies a general increase in maternal interaction with the child when the mother is aware of the presence of the observer. This parallels the findings of Brazelton et al. (1974) who noted

that the middle-class mothers in their study could not be convinced that they were not expected by the experimenter to be interacting constantly with their children.

2. Production of Syntactic Types

The syntactic analysis of mothers' speech was useful for characterizing the grammatical content of the linguistic input to the child in the two different contexts. It had been noted by Newport (1976) and others that mothers, in general, ask many questions. However, the number of questions produced by mothers to their children seemed to vary significantly with the change in context. The relative distribution of other syntactic forms remained relatively stable across condition.

Although middle-class mothers produced a greater number of questions on the average in both conditions than did the lower-class mothers, both SES groups increased question production in the observed condition. This was a device used by mothers from both SES groups to both elicit displays of known information from their children and to encourage them to engage in mutual interaction in the presence of an observer.

Lower-class mothers in both conditions were found to produce a significantly greater number of syntactic imperatives than middle-class mothers. On the other hand, middle-class mothers were found to produce a greater number of declaratives. One might conclude initially that lower-class mothers direct

their children more than middle-class mothers, and that the middle-class mothers converse more with their children than do the lower-class mothers, but the syntactic analysis has to be viewed in the light of the nested pragmatic analysis which follows. Directiveness does, in fact, vary with SES but is also very context dependent.

3. Differential Pragmatic Usage of Utterances

When speech was divided into two functional categories--directives (where the mother intended the child to display a verbal or action performance) and topic-comments (commentary on the environment and activities going on within it)--it became clear that as Austin (1962) and Ervin-Tripp (1976) have pointed out, the syntactic expression of these two functional forms was variable. For instance, "Pick up your blocks!," "Why don't you pick up your blocks?," "I wish you would pick up your blocks," etc. can all mean the same thing pragmatically. In a given situation they can all function as a request for the child to pick up his blocks.

In the unobserved condition, the middle-class mothers' speech consisted of approximately one-third directives and two-thirds topic-comment statements. In the observed condition, the proportion was reversed, with directives accounting for approximately two-thirds of the utterances.

For the lower-class mothers, directives accounted for almost 80% of the utterances in both conditions.

Not only is there a difference in the proportion of pragmatic utterance types produced by the two groups, but the syntactic differences noted above are embedded in these pragmatic nests. For example, the directives for middle-class mothers consisted primarily of questions and declaratives, rather than the imperative form which was most used for command by the lower-class group. Using this indirect form of directive, particularly in the presence of an observer, allowed the middle-class mothers to elicit performances from their children without appearing to be issuing orders.

The imperative, on the other hand, is the most explicit directive sub-type, since its literal meaning is a request for action. For the lower-class mothers who tend to use this more direct form with high frequency, the directing of the child is more out in the open.

Experimenters who attempt to characterize the nature of the teaching that goes on between mother and child (Hess and Shipman, 1965; Bernstein, 1974), particularly if they share middle-class mothers' expectations of the particular kind of performance which should be displayed by mothers and children, may describe the lower-class mothers as very directive in comparison with middle-class mothers, on the basis of syntactic or surface form of the utterances produced. In fact, however, in the observed condition the two groups are quite similar

from a pragmatic perspective. In the observer's presence, both groups of mothers oriented toward the directing of the child, though the surface form of the instruction was different.

There was also a significant difference between middle and lower class mothers in the unobserved condition, and lower-class mothers do seem more consistently oriented toward the direction of the child, but this variable is obviously context sensitive, particularly for the middle-class mothers.

4. Accommodation of M.L.U. and Variability in Utterance Length in Mother/Child Dialogue

Newport (1976) and Snow (1972) have noted certain salient features in mothers' accommodation of their speech to children, including the production of higher pitched, well-formed, slower speech, less syntactically complex, and shorter utterances than in speech to adults. Presumably, motherese is an attempt to stay within the confines of the child's limited memory capacity by reducing the child's cognitive processing load. This seems to be a somewhat universal phenomenon which is not limited to mothers alone. Even four-year-olds have been found to use simplified speech when talking with their younger siblings (Shatz and Gelman, 1973).

Newport et al. point out that the dominant feature of motherese is brevity; overwhelmingly short, single clause

sentences are found to be used for the younger children. It is the brevity constraints which are said to override the other factors which seem to characterize maternal speech adjustment. For instance, brevity constraints may account for syntactic simplicity (single clause utterances) and restriction to easy pragmatic meanings within the speech (Schneiderman, 1980).

However, the production of motherese is not as simple as it at first appears. Though it is true that mothers decrease the mean length of utterance in their speech to their children relative to utterances produced for an adult listener, it is also true that the extent of the reduction of utterance length was context sensitive. In the observed condition, middle-class mothers produced shorter utterances to their children than when they were unaware of being observed. In addition, the variability in the length of utterance production for these mothers was also smaller. Therefore when the experimenter was present, she was collecting a sample of speech which was shorter, and more consistently shorter, than the speech produced by these same mothers to their children when they assume they are alone. In addition, fewer sentence fragments were produced in the presence of the observer. Speech in this context was more "well formed" than speech of the mothers to children when they thought they were alone. This is another characteristic of motherese which has been assumed to be present consistently across contexts. Presumably, as has been noted by Schneiderman (1980), the

adjustment in speech is at least partially a result of a desire to produce effective communication and compliance, on the part of the child, for the production of a particular communicational display.

For the lower-class mothers, M.L.U. was almost identical to that of the middle-class mothers in the observed condition. However, rather than this resulting from a "gearing down" adjustment of the length of utterance for the observer, as had been found for the middle-class group, this represented a slight increase over the length of utterance in the unobserved condition. In addition, the mean standard deviation of the lower-class mothers showed that there was more variability in general in the length of the utterances produced than for the middle-class mothers in either condition. The lower-class mothers tended to vacillate between very short utterances (i.e. "Come!" or "Sit!") and longer ones, and did not attempt to consistently synchronize speech with the processing capacity of the child (i.e. "Be quiet, cause mommy is trying to do this puzzle now."). Although the fine-tuning of maternal speech in the presence of the observer may be part of the mothers' attempts at eliciting particular verbal and physical performances from the child for the observer's benefit, the lower-class mothers do not seem to use the same linguistic strategies for this type of display of mother-child interaction as do the middle-class mothers, and the nature of this interaction will appear somewhat different to the observer who is trying to

characterize the nature of "natualistic" play.

5. Non-Verbal Gesture

It has been suggested that mothers may help their children process speech by directing the child's attention to some aspect of the non-linguistic environment, since presumably the child who attends to context can form an analogy between the ongoing events or the objects present around him and the speech he is hearing (Bruner, 1974). Edwards (1977) shows that mothers may help the child form analogies by non-linguistic cueing. It is unclear to what extent supplementary gestures actually help a naive listener, but there is evidence that mothers believe they will aid in linguistic processing and responding, and mothers have been found to gesture frequently to young children as compared with gesture to fellow adults (Bruner, 1975).

The present study found that both middle and lower class mothers increased overall gestural production in the observed as compared with the unobserved condition, and that the presentation gesture (the most frequently used gesture by both sets of mothers) was also produced with greater frequency in the observed condition. This is a gesture which has been found to be associated in particular with action-oriented games (Shatz and Graves, 1976). The increase in non-verbal gesturing in general may also reflect, and/or in

fact help elicit, the increased number of naming and action games that emerge in the observed condition.

Whether or not the children are able to exploit this and other systematic features of maternal behavior, this behavior does seem to reflect the mothers' own beliefs about what will aid in communication. There appears to be an attempt to get more interaction going, and to keep the child's attention focused on the activities at hand through gesture production, in the presence of the observer.

6. Interactional Game Sequences

Many researchers have noticed the incidence of routines and structured game sequences in interactions between mother and child (Bruner, 1974; Miller, 1980; and Thomas, 1979) but few have looked at these sequences in relation to the effect of context. Two main types of interactional routine--the "naming game" and the "action game" were found to be prevalent among the mother-child pairs in this study as they were in previous studies (Graves and Glick, 1978). These games are patterned interactions involving both verbal and gestural components, structured into a predictable cyclical format. These seem to serve as a type of interactional blueprint into which the mother can systematically insert vocabulary words or physical tasks for the child to learn or display. The routines act as a functional frame for the rehearsal and performance of

previously acquired knowledge, particularly on occasions where the child is called upon to display this knowledge. Because children are familiar with these formats and may also be practiced with the material they contain, they tend to look more knowledgeable and attentive when engaged in them.

There was a main effect of condition on the production of the game sequences, where production increased in the observed condition for both lower and middle class mothers. Overall, the action games accounted for the greatest amount of interaction time for the dyads from both groups. This heavier weighting on action sequences is interesting in light of Shatz's finding that young children are primarily action-oriented in their responses, particularly when presented with utterances which overburden their existing processing capacities. It would make sense that much of the interaction games focused on this form of children's activity, and that this form of play increased when mothers needed to have their children performing and performing well. However, it was the naming game sequences which increased most dramatically in frequency with the presence of the observer. Naming objects was apparently considered appropriate interactional display for the observer by both middle and lower class groups.

Though both lower and middle class dyads engaged in naming and action games, the format and execution of those games seemed to differ somewhat between the two groups in several ways. As far as expectations for an appropriate

performance in the presence of an observer, lower-class mothers had indicated that recitation of conventional knowledge (such as counting sequences or reciting the alphabet) fulfilled the requirements. Sitting quietly or playing alone were also acceptable alternative child activities in the observed condition for the lower-class dyads.

On the other hand, middle-class mothers worked hard in the observed condition to have their children interact with the mother in a reciprocal manner as consistently as possible, performing manual tasks or identifying objects and responding promptly to the mothers' requests. In contrast to the lower-class mothers, their techniques for steering interactive sequences were indirect, and syntactic forms other than imperatives were more often used, so that to the observer, the mothers might not appear to be directing their children as much as they would if the interactions are viewed from a pragmatic perspective. The directiveness behind the various syntactic types is evident in the illocutionary force behind the utterances.

The game production was inversely proportional to periods with no joint focus, which were much more prevalent in the unobserved condition. In these periods where mother and child were not mutually engaged in any interaction, the child was usually playing with a toy and the mother was either involved in her own play project, or just sitting silently.

Conversation between mother and two-year-old was rare

among dyads from both socioeconomic groups. It may be that, at a level where rudimentary turn-taking on a non-verbal level is still being integrated, adult-like linguistic conversational exchanges may be too sophisticated for this age group. When "conversation" did occasionally occur, it seemed to be only among the middle-class dyads.

Transition periods, where there was active negotiation as to the type of activity to be engaged in by mother and child, did not change significantly across conditions. There was much suggesting and rejecting of proposed activities for both sets of mothers in both conditions. This seems to be part of the ongoing process of mother-child interaction, which was, in a sense, the ongoing planning process for the staging of activities.

As far as the length of the game sequences was concerned, the middle-class mothers and children were able to maintain interactive routines through an average of three and one half rounds, whereas the lower-class dyads had interactions lasting a mean of only one and one half rounds. For the middle-class dyads, these game sequences were familiar formats with which mother and child had had some practice. Through engagement in these types of activities with the mother, the child was guided through a series of verbal responses or actions on objects, which can then be repeated and varied in a new round of the same interactional game.

In the lower-class sample, it was noticeable that the mothers and children produced routines which were truncated versions of the naming and action game format. There were often strings of incomplete questions and answers between mother and child, and it was unclear whether the shortness of the routines was due to lack of practice with this type of interaction, or whether the truncated version was simply a cultural variant. In the lower-class pairs, the mothers most often did not repair their children's errors nor did they validate correct answers or completed activities for the child. This left the child without information about whether what he had said or done was considered correct or incorrect in a given situation. With few instances of confirmation or corrected information being provided, the child might learn that this type of interactive exchange was not greatly valued within his subcultural group.

Also, there was often no sense of the ending of a game or the completion of an interactive sequence. The shortened format, or the series of single question--single response sequences may not be as useful to the child for the assimilation of new material as sequences which contain a larger number of rounds and give the child the opportunity to master both the extended routine format and new information which can be substituted into it.

In addition, children who are exposed only to these abbreviated performance routines may run into problems when

they enter contexts outside the realm of their own socio-cultural group. The truncated routines are different from the typical middle-class formats, where there is a routinized interaction--maintained over a period of time, wherein the children are expected to produce correct behaviors in response to adult elicitation, particularly in the presence of an audience considered to be worth impressing. When lower-class children enter the traditional school system with its middle-class orientation, the routines they are familiar with may not be those anticipated by the teacher. Where emphasis is put on the repeated production of correct verbal answers or activities, these children may be at a disadvantage. The types of interchange valued in the formal instructional setting may be something not especially valued by adults in their sub-cultural group. On the other hand, the skills they do develop for interactive routines, such as the teasing routines described by Miller (1980), an intricate game form which involves a production of mock violence, may not be identified by the teachers as the displays of logical reasoning skills and verbal facility which they do, in fact, entail.

Furthermore, lower-class children seem to do much of the work in trying to get their mothers to furnish them with information about the world. In game sequences, they are usually the ones to ask questions of the mother, to try to get her to identify objects or interact with them in a play sequence. This is quite different from the middle-class

mothers who, especially if there is an audience present, are anxious to have the children display their knowledge and facility. Again, in the school situation, a teacher who believes her role is to query the child to bring out the information he has learned, may be viewed as strange or even threatening, by the lower-class child.

7. Maternal Responses to Children's Questions

Both middle and lower class mothers' responses to children's questions in the unobserved condition were quite similar, responses falling almost evenly into the categories of correct, inappropriate and no response. In the observed condition, however, both sets of mothers increased the number of correct responses to children's questions, and decreased the amount of inappropriate responding and non-responding. This change was of a higher order of magnitude for the middle-class mothers who more than doubled the number of correct responses to children's questions when they knew they were being watched. In the lower-class interactions, emphasis on responding quickly and accurately to the children's questions was not as great.

In the unobserved condition the mothers tended to be less involved with the children and more involved with their own activities. This was true for mothers from both SES groups as is reflected in the following game analysis. Mothers who were engrossed with their own play materials did not seem to

want to take the time to answer a child's question.

For lower-class mothers, there continued to be a fairly high rate of inappropriate responding or non-responding to children's questions, even in the observed condition, which may effect children's subsequent development. Evans (1977), investigating the effect on linguistic development of the level of communicative relevance in mothers' responses to children's utterances, found that the quality of response a mother gives to her child's speech in early years has a significant influence on his subsequent linguistic development.

B. Conclusion

What has become clear in this study is that in many respects the middle and lower class mothers in the unobserved condition produce more similar behavioral displays in interaction with their children when a variety of variables are considered, than they appear to produce when they are in the presence of an observer. Increases in the amount of maternal speech produced, use of indirect directives of various syntactic types, production of positive evaluative comments, the display of non-verbal gesture, the responsiveness of the mother to her child's questions or attempts at initiating interactions, and the mother's own initiation and maintenance of interactional sequences with the child in the observed condition relative to the unobserved condition, all point to the

type of display which is considered appropriate to the presence of the experimenter as an audience by the middle-class mothers. Similarly, decreases in these mothers' mean length of utterances, production of topic comment-type utterances, periods with no joint focus of attention with their child, etc., all seem to be part of the same display for the benefit of the observer.

These changes produced by the middle-class mothers in the manner in which they are guiding interactions with their children in the observed condition, seem to have two primary aims: first, the mothers seem to be working to increase the production of correct verbal and physical responses from their child--by attempting to "fine tune" their speech to the child's processing capacity, by rewarding him for accurate, appropriate productions, etc.; and second, the middle-class mothers work to appear, themselves, as active participants and caring, attentive teachers in interaction with their child--by constantly responding to the child's initiations and questions, by increasing their own initiations of game sequences, etc. There would be no way for an experimenter gathering information for a study of language acquisition processes or a study of mother-child interaction patterns to know, without some unobtrusive measure, that the behavioral displays he was witnessing and collecting as his data, were, in part, a performance staged for his benefit.

This marked change in certain aspects of the middle-class mothers' behaviors with the change in context is something which must also be noted by the child. The mother's activity level, her attentiveness, the amount of verbal and physical production and her expectations for the child's behavior are suddenly different. When the dyad is being observed, the child is expected to perform and he is guided toward the proper performance by the many changes in the mother's behavior. At the age of two or two-and-a-half, the child may not be able to produce the requisite behaviors in the specialized contexts which call for them without the mother assuming the role of the "metacognitive expert" and initially structuring the situation for him. After repeated practice in producing familiar routines in similar settings, however, the child should eventually be able to produce proper displays on his own. The communication patterns to which the child is exposed reflect the social world through the family, and will shape the ways in which he approaches interactive situations in the future.

For the lower-class mothers, certain aspects of their behavior, too, change in the presence of the observer, but the emphasis seems to be different from that of the middle-class mothers in interaction with their children. Though lower-class mothers in the observed condition did increase their speech to their children significantly, they did not reduce the length of their utterances for the benefit of the

child and did not significantly change the proportion of topic comment and directive speech they produce. They do, however, like the middle class, increase the number of naming and action games displayed in the observed condition. Within those interactions, the majority of their utterances were consistently directive in nature and composed primarily of imperatives. Their instructions to the child are direct and undisguised. The child has much responsibility, among the lower-class dyads, for initiating and maintaining the interactions, and this is reflected in the format of the games, where the child often assumes the role of the questioner.

The lower-class mothers do not seem intent on producing the same kind of performances for the observer as do the middle-class mothers, where the children appear as active, intelligent beings through the help of the mother's instruction. Rather, they do urge their children to display some of their vocabulary and some of the routines they have learned, such as saying the alphabet or counting to ten, but they are very direct in the requests for the display of this specific information. They themselves do not coax or guide the children through these verbal productions, but merely instruct them to display their knowledge, and if the child does not do so, the issue is usually dropped. The lower-class mothers themselves appear less interested in playing or interacting consistently with their children in the observed condition, though in the unobserved condition it becomes clear that middle-class

mothers, too, are not always as involved with their children as they appear to be on camera. The difference in these mother-child interactional displays, is a factor which may impede the progress of the child in middle-class oriented schools and in "society" in general, given the class system in this country.

This study does not mean to imply in any way that what has been defined as "lower-class" mothers and children, are subjects of cultural deprivation, or show deficits in linguistic and other skills. Neither do they seem to have acquired a dialect of English so radically different from the middle-class that it alone would seriously impair communication. In fact, at this early age there were no significant differences found between children from the two socioeconomic groups in either condition. This seems to support the contention that maternal behaviors are often more a product of the mothers' conceptions of their children's processing capacities, than of any definitive effects of their linguistic manipulations. Rather, it seems that speech, at least for adults, varies as aspects of the eliciting context are changed (Cazden, 1970). As children grow older, they are likely to adopt the interactive styles and social conventions displayed in the family system. Where these children may encounter problems is within contexts like traditional classrooms, formal testing situations and laboratory experimental settings, which do not elicit and/or permit the use of the competences they have

acquired. If the purpose to which these children put language and the ways in which they do so are absent or prohibited, they are likely to encounter problems in these contextual systems.

Even within the field of psychology the middle-class values for what a "proper" display of mother-child interaction should look like, may filter, consciously or unconsciously, into the work of researchers. Bernstein (1974), for example, describes the "elaborated" code of the middle class speech to children in comparison with the "restricted" code of the lower class, which, it is implied, also restricts the child's intellectual growth. However, data about these linguistic codes were gathered without respect to context, and without analysis of how effective each system may be for communicating underlying meaning. It seems clear from the information gathered in the present study that middle-class mothers may come out <u>looking</u> like the better teachers and the "more related" parents, but that this behavioral display is only one of a number of strategies for mother-child interaction which may occur in the course of a day. The lower-class mothers, who may not have as much practice in interaction with their children, but who nonetheless have developed some effective means for communication, will not look as "good" to a middle-class experimenter who is anticipating a display which he himself

probably learned as appropriate to the experimental context.

It is not the case that the present study has shown naturalistic behavior (in the unobserved condition) in contrast to un-natural behavior (in the observed condition), but rather that human life is richly textured and mothers and children are involved in numerous contexts in the course of a day, and that their behaviors are likely to be adjusted to those according to their sense of what is appropriate--a sense which is determined in part by the values of their social class. I would just want to stress the importance of using a broad culturally-relative perspective when looking at aspects of language learning which would take into account the context of elicitation, as well as what is considered appropriate to those contexts by the people being investigated.

There is a need in developmental psychology for an approach which centers on what is made relevant for the child and how it is made relevant. It is important to use a broad culturally-relative perspective when looking at language learning, which takes into account not only the context of elicitation, but the nature of what is considered appropriate to those contexts by the sub-cultural groups being investigated. The class system certainly effects the structure of communication and the process of socialization,

though the effectiveness of the various strategies for processing information in the world needs to be evaluated in terms of material that is relevant to the subjects' lives.

APPENDIX

A. Nested Pragmatic Categories in Maternal Speech--Detailed Analyses

1. Syntactic Division Within Nests

In the analysis of syntactic sub-categories within each of the two major nested divisions, there was a significant main effect of SES for a number of the syntactic categories (see Table 13). The middle-class mothers produced a significantly greater proportion of the following speech forms in relation to their total speech production: 1) topic comment/declaratives ($p < .0001$); 2) topic comment/questions ($p < .001$); 3) topic comment/exclamations ($p < .001$); 4) topic comment/attention words ($p < .05$); 5) topic comment/verb phrases ($p < .01$); and 6) directive/questions ($p < .001$). The following syntactic types, also showed a main effect of SES, but here the lower-class mothers produced a greater proportion of these forms: 1) directive/imperatives ($p < .0001$); 2) directive/exclamations ($p < .01$); 3) directive/attention words ($p < .02$); and 4) directive/noun phrases ($p < .001$).

There was found to be a significant main effect of condition for a number of variables. The following speech

forms were found in greater proportions in the unobserved condition: 1) topic comment/declaratives ($p < .01$) and 2) topic comment/exclamations ($p < .04$). In contrast, the proportion of directive/questions increased significantly in the observed condition ($p < .0001$).

Several of the syntactic variables showed an interaction between condition and SES. For the following variables there was a decrease in the proportion produced from unobserved to observed conditions for the middle-class mothers, and an increase in the production of these same variables for the lower class mothers: 1) topic comment/declaratives ($p < .01$); 2) topic comment/verb phrases; 3) directive/declaratives ($p < .03$); and 4) directive/questions ($p < .05$).

2. Analysis of Syntactic Types by Pragmatic Nest

The second of the detailed analyses (Table 14; Figure 4) reflected the percentages of each syntactic category falling within each of the nested categories. A main effect of SES was found in the relative function of the following syntactic types as either topic comments or directives: 1) exclamations ($p < .02$); 2) attention words ($p < .01$); 3) noun phrases ($p < .001$); and verb phrases ($p < .001$). There were no significant effects of condition on the use of these syntactic types nor was there any significant inter-

action effect for any of the variables in this analysis. The number of utterances classed as "ambiguous" was so small as to be insignificant in all three analyses.

The differences in the function of the various syntactic forms for middle and lower class mothers is shown in Table 14. For middle-class mothers, exclamations are used more as topic comments than directives, whereas for the lower-class mothers the exclamatory form is used both as a directive and as topic comment an equal proportion of the time.

For the middle-class mothers, attention words are used approximately 43% of the time as topic comments and approximately 58% of the time as directives. However, for lower-class mothers the ratio is strikingly different. The attention words are used only approximately 11% of the time as topic comments and 89% of the time as directives when means are averaged across observed/unobserved condition.

Noun phrases and verb phrases are also used more as topic comments, statements about ongoing action and interaction, than as directives by the middle-class mothers, whereas the pragmatic use of these speech forms is the reverse among lower-class mothers. This reflects the more directive nature of the mother-child interaction in general among the lower-class dyads, which becomes clearer in the following analyses.

3. Analysis by Syntactic Category (within Pragmatic Nest)

The third analysis (Table 15; Figure 5) showed a weighting of certain syntactic utterance types within the nested sub-categories. Within the topic comment nested category, there were no significant differences in the relative distribution of the utterance types either across condition or SES and there was no significant interaction effect. However, within the directive nested category, there was a main effect of SES for all syntactic types except exclamations and verb phrases. There was also a significant main effect of condition on the percentage of questions produced within the directive nest. There were no interaction effects for any of the syntactic types within the directive category.

Table 14 shows the differences in distribution of speech forms within the directive category for the middle and lower class mothers. Middle-class mothers produce a significantly greater amount of declaratives ($p < .004$) and questions ($p < .001$), relative to the lower-class mothers. In contrast, the lower-class mothers produce a much greater number of imperatives (48% as compared with only 17% for the middle-class) in the directive category ($p < .001$). There is also a greater production of noun phrases among the directives of lower-class mothers as compared with the middle-class

mothers ($p < .02$).

In this second analysis, the one factor which changed significantly with condition was the production of questions ($p < .01$). For both lower and middle class mothers there was an increase in the number of questions produced in the directive category when the mothers were aware of being observed as compared with the unobserved condition. Production of questions was greater for the middle-class mothers, but the general tendency to increase question production reflected the mothers' orientation toward having their children produce verbal displays for the benefit of the observer.

B. Functional Categories of Speech Production

In addition to the syntactic analysis, mothers' speech was re-coded into five additional categories of functional pragmatic application which had proven interesting in the pilot data (see Table 16).

1. Test Questions

Test questions are questions to which the questioner already knows the answer. These questions might be used by mothers to elicit a display of vocabulary which she knows the child has already acquired, or to give him practice in the production of a newly acquired term (i.e. "What color is the truck?" or "What does the doggie say?").

Differences were found in the relative number of test questions produced by middle-class as compared with the lower-class mothers ($p < .04$), the middle-class mothers producing almost double the proportion of test questions relative to total speech production in both the observed and unobserved condition.

In addition, there was a main effect of condition on the raw number of test questions produced in the observed as compared with the unobserved condition for both SES groups ($p < .03$).

Mothers from both groups produced a greater number of test questions in the observed as compared with the unobserved condition, though the increase in production was greater for the middle-class mothers. Thus, though the presence of the observer seemed to elicit the production of more test questions from both groups, the production was higher for the middle-class mothers, the difference being greatest in the observed condition.

Test questions, by definition, are designed for the display of knowledge. They are questions to which the questioner obviously knows the answer. The fact that there is an increase in this type of speech production when an observer is present seems to reflect the orientation of mothers in general, and middle-class mothers in particular, toward having the child perform verbally by displaying vocabulary skills already acquired for the benefit of the experimenter.

These test questions were usually incorporated into an interactional sequence, the naming or action game, among middle-class dyads particularly, and for the middle-class it seems to be the interaction between mother and child in which the mother plays the role of the interested, skilled teacher and the child the role of the attentive student, that seems to be an integral part of the display for the observer.

The lower-class mothers had a slightly different type of display for the observed condition. Though their production of test questions did increase significantly in the observed condition, it was never as great, in proportion to other types of speech produced, as it was for the middle-class pairs. In addition, the types of sequences in which the test questions were presented were usually very abbreviated. Mothers from the lower-class group would ask a question, but if the child did not answer, or gave an incorrect answer, the mothers most often did not repair the response. If the child responded correctly, the lower-class mothers were not likely to validate the response for the child or give him any positive reinforcement. For these mothers, the interactional display of responsiveness between mother and child did not seem to be of primary importance. It was as if the mothers had an expectation that some information display on the part of the child was expected, but not that the quality of the interaction itself would be valued by the observer.

2. Indirect Directives (see Table 16)

Indirect directives are imperatives disguised as questions (i.e. "Can you put the elephant on top of the pile?" rather than, "Put the elephant on top of the pile."). They can be used in interactions to direct a child without seeming to be issuing direct commands.

There was found to be a significant effect of SES ($p < .04$) on the production of indirect directives relative to the total amount of speech produced. [Middle-class mothers produced a mean of 11% indirect directives in the observed condition and 6% indirect directives in the unobserved condition, as compared with 3% observed and 5% unobserved for the lower-class mothers.] Though the change across condition was in the predicted direction for the middle-class mothers, it was not of great enough magnitude to be statistically significant.

Though in the observed condition the amount of indirect directive questions produced by the middle-class mothers was much higher than that produced by the lower-class mothers, it is of note that in the unobserved condition, middle and lower class mothers are very similar on this measure. In addition, the indirect form of issuing orders seems to be characteristic of middle-class mothers, particularly when they are aware of the presence of a formal audience.

In this sub-category analysis, the term "indirect directive" is being used to refer only to the question form whose illocutionary force is imperative (i.e. "Can you shut the door?"). However, as was discussed in the previous section on nested categories, there is also a marked increase for middle-class mothers in the amount of all types of directives produced in the observed condition, directives termed "indirect" by virtue of the fact that relatively few of them occur in the direct imperative form. For the middle-class child, a declarative statement such as, "The little boy fits on the horse," properly gestured and inflected, can be as effective a directive as the statement, "Put the boy on the horse," might be. The increase in the number of indirect directive questions noted above fits into the picture of the middle-class attempting to direct the child's behavior for the benefit of the observer, while seeming not to be doing so, to maintain the appearance of harmonious relations between mother and child. With the lower-class dyads, communication between mother and child tends to be more direct and directive, rather than couched in an ambiguous form.

3. Evaluative Comments (see Table 16)

a. Positive Evaluative Comments (P.E.C.)

Positive evaluative comments (i.e. "That's right!" or "Very good, Johnny!") may serve as feedback for children,

providing them with information about situational expectations and how a mother may view what they are doing or saying in a given situation.

There was both a main effect of socioeconomic status ($p < .02$) and a main effect of condition ($p < .05$) on the production of P.E.C.'s by the mothers.

As was expected, the middle-class mothers increased the number of positive evaluative comments produced in the observed condition relative to the unobserved condition. In relation to their total speech production, the middle-class mothers produced 7% P.E.C.'s in the observed condition, as compared with only 3% in the unobserved condition ($p < .04$). Lower-class mothers also produced a slightly greater proportion of P.E.C.'s in the observed condition (3%) as compared with the unobserved condition (2%). In both conditions, the middle-class mothers produced a greater proportion of P.E.C.'s than did the lower-class, but in the unobserved condition, this difference was extremely slight.

b. Negative Evaluative Comments (N.E.C.'s)

Negative evaluative comments can similarly be used as feedback for children by providing information about which speech forms or activities are considered incorrect or undesirable in a particular social situation.

A main effect of condition was found on the relative production of negative evaluative comments ($p < .05$). In

this case, the production of N.E.C.'s decreased significantly in the observed condition as compared with the unobserved condition. There was also a significant main effect of SES on the raw production of N.E.C.'s, the lower-class mothers producing a significantly greater number of N.E.C.'s, especially in the unobserved condition ($p < .02$).

Overall, in the observed condition, middle-class mothers in particular increased the number of positive evaluative comments, forms of praise for good performance, and decreased the number of negative evaluative comments produced, as compared with their verbal behavior in the unobserved condition. Lower-class mothers followed the same pattern, though production of P.E.C.'s in the observed condition and N.E.C.'s in the unobserved condition was much greater than middle-class production. Thus, it seems that in the unobserved condition, both sets of mothers gave relatively few verbal positive reinforcements and felt freer to use negative feedback than they did in the observed condition, though lower-class mothers tended to make greater use of negative comments to control their children and increased the number of positive evaluations only slightly. This type of display and the aid it may give to the child's performance, again seems to be more valued by the middle-class mothers in the presence of an observer.

4. Repetitions and Repetition Variations

(see Table 16)

Repetitions refer to mothers' exact repetition of her own previous utterance, and repetition variations refer to slight deviations from the previous utterance, where the repetition or repetition variation occurs either immediately following, or within one conversational turn of, the initial utterance. Use of repetitions or their variants, might reflect the amount of work mothers are doing to try to insure acquisition or comprehension by the child of elements of her speech stream, or may indicate the mother's intention to initiate interaction with the child. Since repetition of utterances may aid the child in hearing and understanding the mother's speech, it may also improve his performance, or at least reflect an attempt to improve his performance on the part of the mother.

For repetitions and repetition variations there was a main effect of socioeconomic status on the production of these speech forms ($p < .01$). In both observed and unobserved conditions, lower-class mothers tended to repeat speech more than did middle-class mothers. In the observed condition, middle-class mothers' speech contained an average of 15% repetitions relative to total speech production, as compared to the lower-class mothers who tended to repeat approximately 25% of their speech. In the unobserved condition, the

proportion of repeated speech was 21% for the lower-class mothers as compared with only 13% for the middle class.

Neither middle nor lower class mothers seemed to increase the proportion of repetitions of their own speech across conditions as had been expected. The fact that the lower-class mothers repeated as much as one-fourth of their speech in interactions with their children, may in part be due to the fact that much of their speech is in the form of directives, and repetition may be a strategy needed to induce the child to produce the desired behaviors. The other thing that seemed apparent in viewing the lower-class mothers and children, was that these dyads seemed much less used to playing and conversing than did the middle-class mother-child pairs, and repetition may have been used not only to help the inexperienced child understand what the mother was asking of him, but to fill conversational space in the interaction period when the mothers were not practiced with a variety of interactional routines.

C. Descriptive Aspects of Mother-Child Interaction

1. Mixed Messages (see Table 17)

Mixed messages were occurrences where the semantic content of an utterance conflicted with the intention behind that utterance as indicated by non-verbal and paralinguistic

information. Most mixed messages fell into one of three categories:

(1) indicating a verbal interest in the child's play, where there was no other index of mothers' interest and no subsequent interaction with the child;

(2) inviting the child to join the mother's activity, yet making it impossible for the child to do so; and

(3) making a statement or asking a question where the intent behind the utterance is different from the surface meaning (i.e. "Mommy was working on that puzzle," when the child has removed pieces and the mother's displeasure was clear.)

Although the definition of mixed-message incidents is somewhat subjective, there was 86% intercoder reliability, after a brief training session, among three independent coders. People seemed to have common intuitions about what interactions constituted mixed-messages, and became more attuned to them through the course of the coding.

There was a main effect of socioeconomic status on the production of mixed messages ($p < .04$). In the observed condition, middle-class mothers produced a mean of 5.1 mixed messages, as compared to 12.4 for the lower-class mothers. In the unobserved condition, middle class produced 9.4 as compared to 12.8 mixed messages for the lower-class mothers.

The difference in mixed message production was clearest in the observed condition, where middle-class mothers cut their production of mixed messages in half. Production of mixed messages seemed to be an undesirable part of the mother-child interaction picture for the middle-class mothers in the presence of an observer, but again did not seem to be of concern to the lower-class mothers.

2. Telegraphic Speech

Telegraphic speech was characteristic of many of the lower-class mothers, but appeared very rarely in the speech of the middle-class mothers to their children. Speech forms like "No hit me. I'm nice," or "No cry, I gonna hit you," were found in the speech of eight out of the ten lower-class mothers. This speech form was found in the speech of only two of the ten middle-class mothers, and then constituted less than 1% of their total speech. Though it did not characterize the speech of <u>all</u> the lower-class mothers, telegraphic speech was more common in the lower-class corpus, though there was variability in the amount of telegraphic speech produced by the individual lower-class mothers. Telegraphic speech constituted a mean of 6% of the total speech of the lower-class mothers, though it ranged from 2% to 13% among these mothers.

3. Alternative Syntactic Forms

The speech of the lower-class mothers was characterized by the use of non-standard speech forms--alternatives to standard English. Sentences like, "I don't got a crayon," appeared in the speech of nine out of ten of the lower-class mothers and constituted a mean of 4.9% of their total speech production on the average. Ungrammatical speech was found in the tapes of only four of the ten middle-class mothers, and then constituted only a mean of 1.4% of the total speech produced.

4. Maternal Taking Possession of Objects

(see Table 18)

The number of times a mother physically took an object from her child was noted for all mother-child pairs in both conditions. No attempt was made to delineate the intention behind taking possession of the object, and thus this measure is simply an index of the "taking possession" phenomenon which seems to occur during the course of mother-child interaction.

There was a significant interaction between SES and condition on the taking possession of objects by the mothers ($p < .003$). Middle-class mothers took possession of objects an average of more than three times as often in the course of the unobserved condition, as compared with the observed

condition. The lower-class mothers, on the other hand, showed little change across condition.

It is interesting to note that there was only a slight difference between the two socioeconomic groups in the observed condition, yet in the unobserved condition, middle-class mothers were almost twice as likely to take possession of an object from their child. This may be partly due to the fact that there was generally more interaction among the middle-class mothers and children in both conditions than among the lower-class dyads. In addition, in the unobserved condition, there seemed to be more attempts on the part of the middle-class mothers to keep their children quiet, and to keep them away from certain objects in the environment, such as the video equipment or noisy toys.

In the observed condition, however, the taking of objects from the child seemed to be something the middle-class mothers were reluctant to do in front of the observer. Among the lower-class pairs, on the other hand, the number of times the mothers took objects from the child even increased slightly on the average, in the observed condition, possibly because of increase in the general level of activity in this condition. For the lower-class mothers, taking possession of objects seemed to be an acceptable part of the behavioral display for the experimenter.

Table 13

Syntactic Division Within Nests (Relative to Total Utterances)

		D		Q		I		EX		ATT		NP		VP		Overall Totals	
		T.C.	Dir.	T.C.	Dir.	T.C.	Dir.	T.C.	Dir.	T.C.	Dir.	T.C.	Dir.	T.C.	Dir.	T.C.	Dir.
Middle Class	Unobs.	27%	4%	15%	15%	0%	9%	13%	3%	1%	2%	6%	1%	2%	<1%	64%	35%
	Obs.	14%	10%	10%	33%	<1%	11%	9%	4%	1%	2%	3%	1%	1%	1%	38%	61%
Lower Class	Unobs.	7%	9%	5%	11%	<1%	37%	7%	8%	<1%	5%	3%	6%	0%	1%	23%	77%
	Obs.	8%	7%	4%	18%	<1%	37%	5%	6%	<1%	5%	2%	5%	<1%	1%	20%	79%

Table 14

Analysis by Nest (within Syntactic Categories)*

		Decl.		Q		I		Ex		Att.		NP		VP	
		T.C.	Dir.	T.C.	Dir.	T.C.	Dir.	T.C.	Dir.	T.C.	Dir.	T.C.	Dir.	T.C.	Dir.
Middle Class	Unobserved	69%	30%	37%	62%	0%	100%	72%	26%	41%	59%	66%	34%	81%	19%
	Observed	55%	45%	26%	73%	1%	99%	66%	33%	44%	56%	61%	39%	71%	29%
Lower Class	Unobserved	44%	55%	37%	60%	1%	99%	47%	53%	15%	86%	34%	66%	0%	100%
	Observed	53%	47%	26%	73%	0%	100%	52%	47%	7%	93%	31%	69%	15%	85%

*See Figure 4

T.C. = Topic Comment
Dir. = Directive

NOTE: 1% ambiguous not noted.

Table 15 (see Fig. 5)

Division by Syntactic Categories (within Nests)

			D	Q	I	Ex	Att	NP	VP
Middle Class	Unobs.	Topic Comments	34%	20%	0%	25%	5%	11%	4%
		Directives	20%	38 %	17 %	10%	10%	4%	1%
	Obs.	Topic Comments	33%	25%	1%	26%	4%	10%	2%
		Directives	20 %	49 %	17 %	8%	2%	5%	1%
Lower Class	Unobs.	Topic Comments	31%	22%	1%	31%	1%	13%	0%
		Directives	12%	14 %	43 %	10%	6%	8%	1%
	Obs.	Topic Comments	39%	23%	<1%	28%	1%	7%	1%
		Directives	9 %	25 %	47 %	7%	7%	7%	1%

Table 16

Relative Production of Four Functional Categories of Maternal Speech

Middle Class

	Test Questions	Indirect Directives	Evaluative Comments		Repetitions
			Positive	Negative	
Observed	15%	11%	7%	4%	15%
Unobserved	7%	6%	3%	5%	13%

Lower Class

	Test Questions	Indirect Directives	Evaluative Comments		Repetitions
			Positive	Negative	
Observed	7%	3%	3%	6%	25%
Unobserved	4%	5%	2%	12%	21%

Table 17.

Mean Number of Mixed Messages

	Middle Class	Lower Class
Observed	5.1	12.4
Unobserved	9.4	12.8

Table 18

Mothers Taking Possession of Objects

(mean number of incidences)

	Middle Class	Lower Class
Observed	2.3	5.3
Unobserved	7.4	4.7

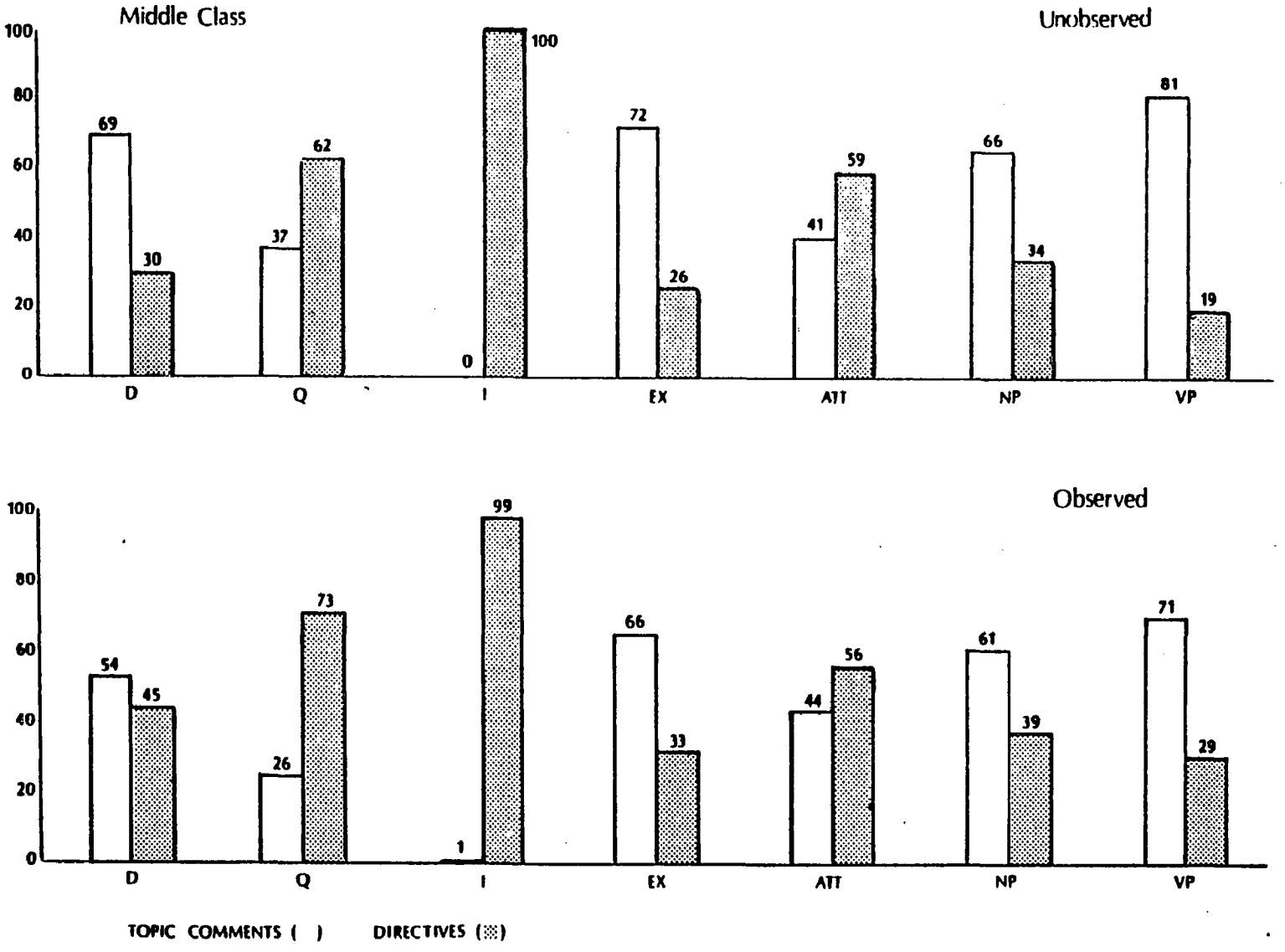


Fig. 4a--Analysis by "nest" (within syntactic category), middle class. See Table 14.

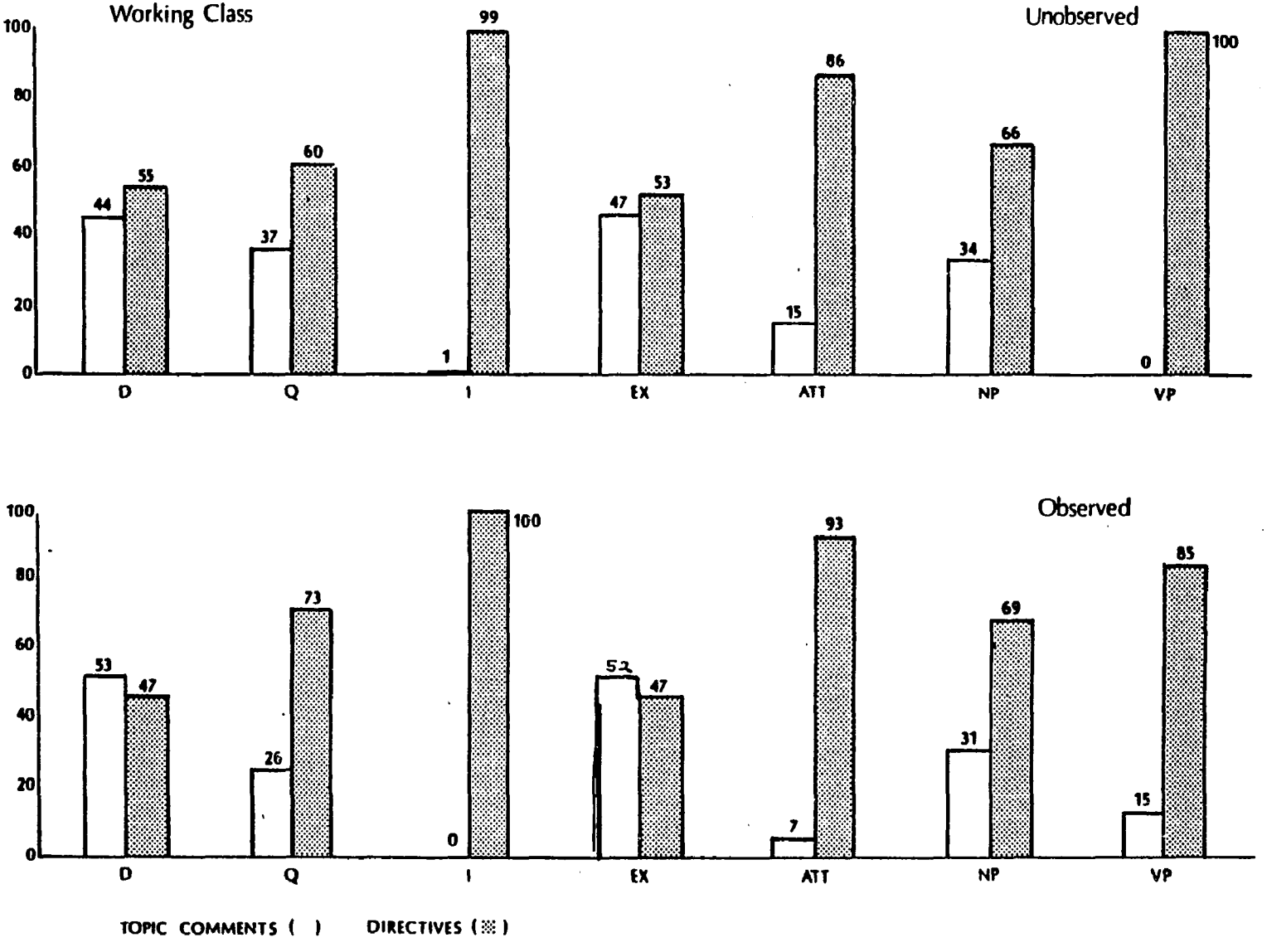
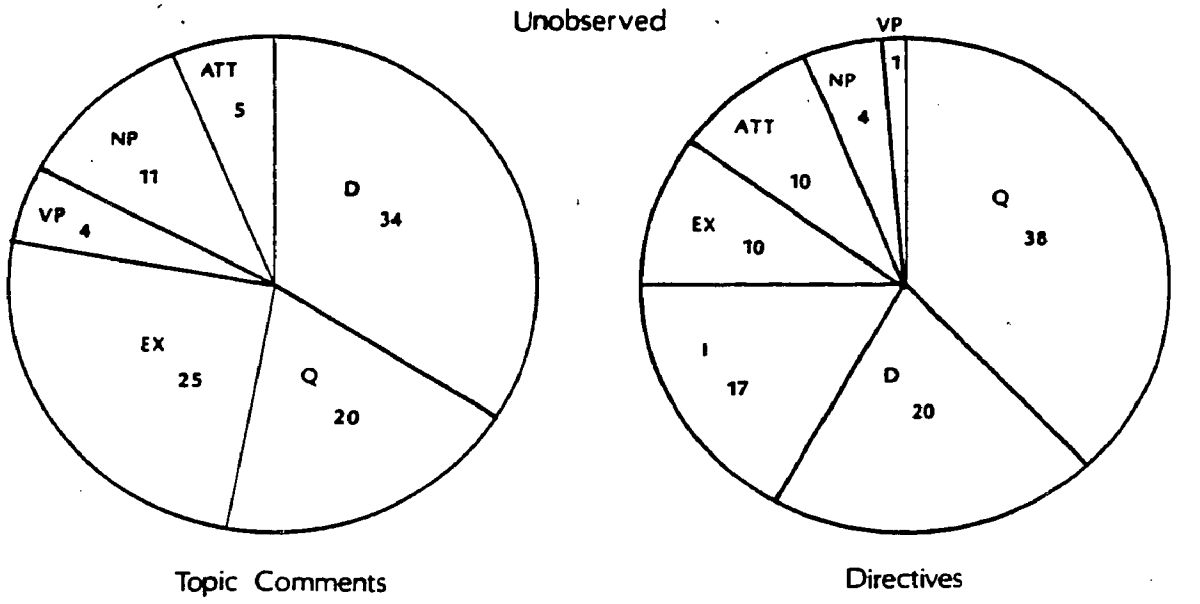


Fig. 4b--Analysis by "nest" (within syntactic category), lower class. See Table 14.

Middle Class



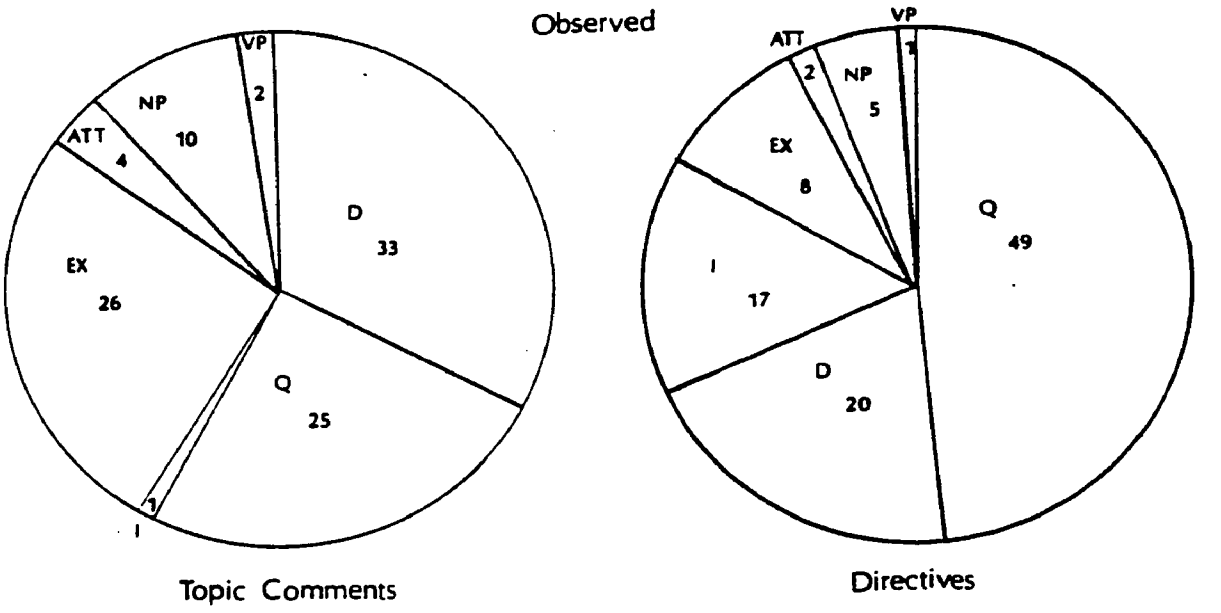


Figure 5a Analysis by syntactic category within nest, middle class. See Table 15

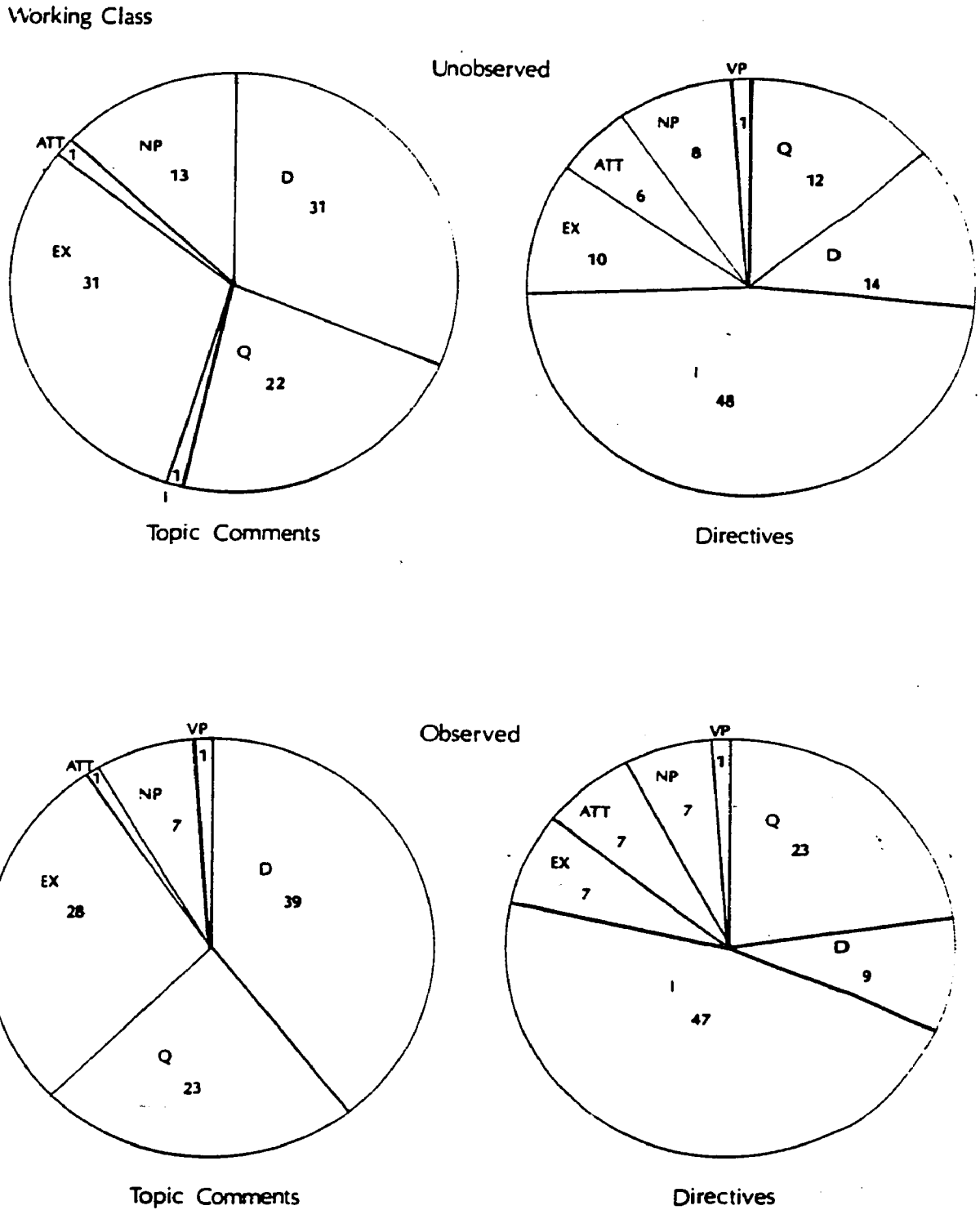


Figure 5b Analysis by syntactic category within nest, lower class. See Table 15 .

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