

TURNTAKING REPAIR AND TOPIC MAINTENANCE ABILITIES  
IN MENTALLY RETARDED ADULTS

by

DEBORAH ANN WARNE

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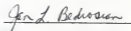
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Approved by:

  
Major Professor

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Chapter I  
REVIEW OF THE LITERATURE

Historically, studies have focused on the linguistic deficiencies of mentally retarded adults (O'Connor & Hermelin, 1963; Schiefelbusch, Copeland, & Smith, 1967; Gunzberg, 1968; Schiefelbusch, 1972; McLean, Yoder, & Schiefelbusch, 1972). More recently, however, researchers have concluded that communicative competence of mentally retarded adults "was as much a fact to be described and accounted for as their linguistic incompetence" (Price-Williams & Sabsay, 1976, p. 58). Pragmatics is the area of language that encompasses an individual's communicative competence. Bates (1976) defined pragmatics as the rules governing the use of language in context. Those investigators employing a pragmatic approach to studying the communicative performance of the adult retarded (Sabsay, 1975; Price-Williams & Sabsay, 1976; Bedrosian & Prutting, 1978; Bedrosian, 1979; Owings & McManus, 1982) have been interested in the utterance; how it relates to

the context of use and the function it serves in communication (Price-Williams & Sabsay, 1976).

The shift towards a pragmatic view of language of mentally retarded adults was influenced by studies regarding normal adult communication patterns as well as those regarding pragmatic development in normal language acquisition. Two areas of pragmatics receiving current attention are turntaking and topic. A discussion of both areas in normal development is warranted before examining these two communicative behaviors in mentally retarded adults.

#### Organization of Turntaking

Conversations vary depending on the participants, the context of the interaction, and a combination of both variables. Turntaking is one aspect of conversation that maintains some consistency across contexts, and yet can be affected by social aspects. The "context-free" yet "context-sensitive" status of turntaking in conversation sparked the research of Sacks, Schegloff, and Jefferson (1974). The investigators stated that "turntaking seems a basic form of organization for conversation" (p. 700). Sacks et al. (1974) analyzed natural conversations of adults and proposed a model for the turntaking organization of conversation. Their model accommodated rules governing

turn construction observed by participants in conversation. These rules included the following:

- 1) Speaker-change recurs, or at least occurs;
- 2) Overwhelmingly, one party talks at a time;
- 3) Occurrences of more than one speaker at a time are common, but brief;
- 4) Repair mechanisms exist for dealing with turntaking errors and violations; and
- 5) Turn-allocation techniques are obviously used (p. 700-701).

With regard to the discussion of repair mechanisms, the investigators reported that repair devices were initiated as a result of a violation in the distribution of conversational turns. Turntaking errors were considered to be simultaneous talking by two conversational participants. The basic device for repairing turntaking violations was stopping a turn before its completion. Thus, one speaker stopped talking while the other speaker continued in order to satisfy rule #2 of "one party talks at a time". Repair mechanisms also included complaints about interruptions, the use of "excuse me" and other interruption markers, and repetitions of all or part of the interrupted turns.

#### Turn-allocation Techniques

Sacks et al. (1974) described mechanisms and techniques used to select the next speaker of conversation. The turn-allocation techniques were



grouped into "current speaker selects next" and "self-selection". Question-answer and other sequences such as greeting-greeting and challenge-rejection were used for "current speaker selects next" techniques. The primary technique for self-selection was simply "starting first". This technique was used most often because, according to the investigators, if one individual did not begin to talk following a brief pause, another individual would begin. Thus, the opportunity for one's speaking turn would pass quickly if such a technique was not employed to gain the speaking floor.

Wiemann and Knapp (1975) also discussed turn-allocation techniques used in successful exchanges of speakers. The investigators reported the findings of an investigation by Wiemann (1973). Wiemann used conversational exchanges of nine pairs of college students to analyze randomly selected parts of the interaction for verbal and nonverbal turntaking behaviors. Results yielded specific turn-yielding cues and turn-requesting cues. Turn-yielding cues were verbal or nonverbal behaviors used by the speaker to signal to others that he was preparing to terminate his turn. A successful exchange was considered to be the absence of simultaneous turns by both participants.

Thus, the speaker would emit turn-yielding cues and the other participant would respond by taking the floor if the turn-allocation techniques were working properly. Completions, interrogative requests, and other-directed gazes were reported by Wiemann (1973) to be significant in the turn yielding mechanism. Turn-requesting cues were used to signal to the speaker that another participant wanted the floor. Simultaneous talking was the most frequently used turn-requesting cue reported by Wiemann (1973). Stutter starts and head nods were also frequently used by the auditor in turn-requesting.

Silence at the end of an utterance can also serve as a turn-yielding mechanism. Jaffe and Feldstein (1970) investigated the length of pauses as a turntaking mechanism. Using an interview situation between adults, it was found that speaker changes occurred more frequently with longer pauses. It was reported that 0.77 seconds was an average pause time between speakers.

#### Development of Turntaking in Children

Children learn basic turntaking rules early in development. Stern, Jaffe, Beebe, and Bennet (1975) examined the vocalizing communicative interaction between mother-infant dyads. It was found that the rule of "only one person speaks at a time" and "you talk

after someone else" was learned in the first nineteen to twenty months of life.

Similar findings were reported by Bloom, Rocissano, and Hood (1976) in a longitudinal study of adult-child discourse. The subjects consisted of four children from approximately 19 to 36 months of age. The data reported for this study were collected when each subject's mean length of utterance (MLU) in morphemes coincided with Brown (1973) Stage I, II, and V. With regard to turntaking, results indicated that children even in Stages I and II used the following basic rules of turntaking: conversational participants take turns when talking and an individual speaks when spoken to.

Other investigators have reported on more specific aspects of turntaking in children. Berninger and Garvey (1981) examined the role of questions in children's turntaking behaviors by analyzing 15-minute free play interactions of nursery school dyads. The children represented two age groups: one ranging from 34 to 39 months of age; and the other ranging from 55 to 67 months of age. Declarative and interrogative utterances, as well as those speech events following the utterance, were coded for four dyads selected randomly from each of the two age groups. Results indicated that the probability of a turn transfer was higher following

questions than assertions. The investigators examined pause times between speakers and found that "switching pauses were about the same following both questions and assertions" (p. 375).

Another study conducted by Garvey and Berninger (1981) revealed additional findings regarding pause time in children's turntaking. Fifteen-minute play interactions of forty-eight dyads of nursery school children were videotaped. The children ranged in age from 34 months (in Group I) to 67 months (in Group III). Pause time durations between speakers were more brief for the Group III dyads than for Group I. The average switching pause times for Group III and Group I were 1.1 seconds and 1.4 seconds, respectively. The investigators stated that the reduction of switching pause duration may indicate an increasing recognition of exchange patterns with age. Results also indicated that children did not rely on pause alone to cue speaker transfer. Pauses between speakers were more brief than between-utterance pauses within speakers. Thus, a speaker change did not occur automatically because the other participant stopped talking. The previous message and its context determined the significance of the pause for turntaking. Five seconds was well above the normal range for children to switch speakers.

### Turntaking Violations in Children

Violations of turntaking rules have also been investigated in children's speech. Gallagher and Craig (1982) examined simultaneous speech in triadic conversations of six, four-year-old girls. Two twenty-minute videotaped language samples were collected from each of the two subject groups in a naturalistic play environment. The children's verbal and nonverbal behavior was coded for the presence or absence of speakers overlapping. Simultaneous language behaviors were coded as verbal/verbal overlaps, verbal/nonverbal overlaps, or nonverbal/vocalization overlaps. Results indicated that overlaps occurred approximately 16 percent of the time within the two triads, with verbal/verbal overlaps being the most frequent type of simultaneous speech. Two types of verbal/verbal overlaps were observed: sentence initial overlap, which involved a simultaneous start (one utterance by the previous speaker and the other by one of the previous listeners); and sentence internal overlap, which involved an interruption of the current speaker's utterance. Sentence initial overlaps increased dramatically when there was a disproportionate share of speaking time available to one of the children. A structural analysis of the sentence internal overlaps indicated that the

children engaged in turn completion projections. The investigators concluded that the children:

seemed to be adept in their conversational management. Analysis of their simultaneous speech, rather than revealing conversational inadequacy, suggests interactive competence (p. 74).

Sachs (1982) also investigated preschool children's violations of turntaking to determine whether they were acquiring some of the rules governing politeness in conversation. The investigator examined 73 natural instances of interruptions by eighteen children in the preschool setting. The results indicated that the preschoolers did not use politeness routines (e.g., "Excuse me") when interrupting conversations. It was suggested that the:

child's development of appropriate interrupting behavior involves not only learning of a number of conversational rules but also changes in the child's processing capacities to permit use of the rules that are known (p. 353).

To date, few studies have examined the repair of turntaking violations in child discourse.

#### Organization of Topic in Children and Adults

In addition to analyzing the organization of turntaking in discourse, investigators have also studied the organization of discourse with regard to topic. Topic has been defined as "a proposition (or set of

propositions) about which the speaker is either providing or requesting information" (Keenan & Schieffelin, 1976, p. 338). The manipulation of topic is a dynamic phenomenon and is another element that provides organization for conversation (Brinton & Fujiki, 1983). The organizational framework of topic in conversation basically involves establishing, maintaining, and sustaining the discourse topic.

#### Establishment of Topic

Keenan and Schieffelin (1976) proposed a model used by speakers to establish a discourse topic. The model was based on a variety of sources involving child-child and child-adult conversations. The investigators also stated that the model was applicable to adult-adult interactions. The following basic prerequisites for topic establishment by speakers were identified:

the speakers must secure the listener's attention; speak clearly; provide sufficient information to enable the listener to identify requisite objects, individuals, or ideas; and also provide sufficient information for the listener to determine the intended semantic relations between referents (p. 350).

In order to determine the speaker's discourse topic, the listener also has certain responsibilities. She/he must attend to and process the speaker's utterance, identify the referents, and determine the meaning of the

relationships among the referents (Keenan & Schieffelin, 1976).

One of the most important prerequisites for a successful discourse topic is to establish the referent (Sacks & Schegloff, 1974; Clark, 1973). To be a successful communicator, the speaker's discourse topic must take the listener's knowledge into account (Keenan & Schieffelin, 1976). This obligation can be accomplished in several ways: the speaker may draw on information given previously in the conversation, information in the immediate environment, or information known to be common to both interactants (Garfinkel, 1967). Clark (1973) referred to a "given-new contract" in which the speaker has the responsibility to syntactically mark "given" information that she/he thinks the listener already knows and mark "new" information the listener may not know. Thus, the speaker takes the listener's knowledge into account when referring to something in the conversation. Sacks and Schegloff (1974) referred to this process as "good recipient design". (i.e., when the speaker aids the listener in identifying the referents in the discourse topic).

Children, as well as adults, are aware of their responsibility to help the listener in identifying the



referent in order to establish the discourse topic. Keenan and Klein (1975) analyzed the conversational interaction of twin boys, aged 2 years 9 months at the onset of the research. The twins' early morning interactions were recorded each month over a one year period for the purpose of describing the methods used by the children to maintain a coherent conversation. With regard to establishing discourse topics, results indicated that it was easier for the children to introduce and establish a topic when it involved an actual object in the immediate environment. Each child demanded, through the use of verbal attention getters, that the other identify the referent and then acknowledge its identification.

McTear (1979) investigated conversational initiations of eighteen preschool children's interactions during free play. Results indicated that the children repeated or reinitiated their utterance when they received either no response or an unsatisfactory response from the listener. The investigator stated that the reinitiations demonstrated the ability of children to recognize the occurrence of a breakdown in communication and to initiate repair to correct the breakdown.

Rees (1978) stated that children ensure listener identification of the topic not only by verbal devices such as "look" and "see", but also by using nonverbal devices such as pointing to or touching the actual object. Rees reported that Atkinson (1974), in an unpublished manuscript, argued that the phrases "look", "see", and "there" used by children should be described as devices used to direct the listener's attention to the referent. A child may also initiate and establish a topic by repeating one word over and over until the listener understands and responds to the child's focus of attention.

In addition to using verbal attention getters to identify referents in the immediate environment, adults also use such devices to identify referents in memory. According to the observations of Keenan and Schieffelin (1976), adults often direct the listener's attention to a referent in memory by phrases such as "Look at what happened to Sam when he . . .". In contrast, children were not observed to use "look" and "see" to refer to referents in memory.

#### Development of Discourse in Children and Adults

As discussed previously, a prerequisite for successful collaboration on a discourse topic is to establish the referent. Once the referent has been

successfully established, discourse may evolve in a variety of ways. Keenan and Schieffelin (1976) defined discourse as "any sequence of two or more utterances produced by a single speaker or by two or more speakers who are interacting with one another" (p. 340).

Continuous Discourse. One manner in which discourse may evolve is through the maintenance of a topic established by one speaker. Keenan and Schieffelin (1976) referred to sequences in which the topic of an utterance was linked in some way to the topic of an immediately preceding utterance as "continuous discourse". Continuous discourse can be accomplished in at least two ways: first, through the use of "topic collaborating", in which a "discourse topic is sustained over two or more utterances" (p. 341). The topic, in this case, matches that of the immediately preceding utterance. Second, continuous discourse can be achieved through "topic incorporation" in which a "discourse topic integrated a claim and/or presupposition of an immediately prior utterance" (p. 341). Thus, the discourse topic is related to, but is not the exact topic of the immediately preceding utterance.

Development of Continuous Discourse in Children.

The ability to maintain topics develops with age.

Several studies have examined the development of children's abilities and strategies used to maintain the discourse topic.

Bloom, Rocissano, and Hood (1976) reported that children from Brown Stage I to V increased in their ability to maintain and add information to the topic of the adult utterance. The role of adults' use of questions in children's development of discourse was also investigated. Results indicated that children maintained topics more often after adult questions than after non-questions. This ability also increased developmentally. Bloom et al. (1976) reported that the use of imitation to maintain topics decreased from Stage I to Stage V for the subjects studied, and that it occurred more often after nonquestions than after questions.

Other investigators have also studied the development of children's topic skills in discourse. Brinton and Fujiki (1983) examined 15 minutes of spontaneous conversation for six dyads of peers at each of the following three age levels: 5 years to 5 years, 11 months; 9 years to 9 years, 11 months; and adult. The investigators reported that although the percentage of the topic maintenance turns increased with age, some of the five-year-olds maintained topics for extended

sequences. However, age group differences in the manner in which topics were maintained were reported. The five-year-old dyads frequently used repetition to maintain topic whereas, the older subjects did not. When the number of novel utterances per maintained topic was considered, the nine-year-olds produced significantly more novel utterances than five-year-olds, and adults produced significantly more novel utterances than either child group.

Keenan and Klein (1975), in their study of the discourse of young twin boys, argued that frequent repetition served different communication functions for the purpose of maintaining coherent conversation. The investigators stated that repetition was used for acknowledging, denying, answering questions, and querying. The children also used repetition in "sound play", those utterances which were referentially meaningless. In sound play, the children focused on the sound of one another's utterances and then repeated or modified the sequence of sounds. Thus, the "topic" of the conversation was still maintained. The use of sound play to maintain topics decreased with age. At 2 years 9 months, a third of the exchanges were sound play but by the age of three, sound play was virtually absent. It was concluded that sound play served a communicative

function for the children by aiding the development of conversational skills.

Topic Shading. In addition to a topic of an utterance being linked to an immediately previous utterance, there are other manners in which discourse topics may develop. One manner involves the use of "topic shading" (Schegloff & Sacks, 1973). According to Schegloff and Sacks (1973), topic shading involved a change of focus rather than a discrete transition from one topic to another. Thus, the topic was neither strictly maintained, nor changed from one utterance to another.

Topic shading has not been extensively studied. In a study conducted by Brinton and Fujiki (1983), the frequency of occurrence of topic shading in the three age groups described earlier was examined. Results indicated that adults shaded topics significantly more frequently than children. It was suggested that topic shading may be an advanced conversational strategy used by speakers to maintain continuity in the discourse while moving from one topic to another.

Discontinuous Discourse. A third manner in which discourse may develop, in addition to continuous discourse and topic shading, is that of discontinuous discourse (Keenan & Schieffelin, 1976). Discontinuous

discourse refers to a discourse topic that is not linked in any manner to a topic of any immediately previous utterance. According to Keenan and Schieffelin (1976), discontinuous discourse can occur either by re-introducing a topic that appeared in the discourse previously, or by introducing a new topic that was not related to the immediately preceding topic or to any topic initiated previously in the discourse.

Marking Topic Changes. When a speaker engages in continuous discourse, she/he assumes that the listener can follow the discourse topic without marking the topic explicitly. However, when an utterance is not relevant to the previous one, the speaker must recognize that she/he must mark the topic in some manner in order for the listener to understand it (Keenan & Schieffelin, 1976). It is the speaker's responsibility to make the discourse topic known to the listener. According to Keenan and Schieffelin (1976), the adult speaker may mark topic changes by remarks such as "not to change the subject, but. . .", or "that reminds me, did you hear about . . .?".

Children do not usually mark topic changes as do adults (Keenan & Schieffelin, 1976). Keenan and Schieffelin stated that young children, especially those at the one- and two-word stages, have difficulty marking

topic switches because of a more limited attention span, distractability, lack of comprehension, and egocentricity.

Repair of Referent. When a child or adult speaker fails to mark the topic changes sufficiently or overestimates a listener's knowledge, the listener may misunderstand the message because of an inability to identify the referent of the new discourse topic. The listener may then request further information concerning the referent (Keenan & Schieffelin, 1976). The work of correcting the misunderstanding is referred to as "repair" (Keenan & Schieffelin, 1976; Sacks, Schegloff & Jefferson, 1974). Conversational participants use repair mechanisms until the referent is established. (It is important to note that repair of referent is different from repair of turntaking which was discussed previously.)

Several investigators have discussed the use of referent repair in children and adults. Either the speaker or listener may initiate a repair. According to Keenan and Schieffelin (1976), self-initiated repairs are those in which "the speaker who produces the repairable perceives the repairable and repairs it" (p. 354). Other-initiated repairs are those in which "someone



other than the speaker who produces the repairable indicates that some repair is necessary" (p. 354).

Cherry (1975) investigated a specific repair mechanism, request for clarification, in teacher-child and mother-child interactions. A model of the request for clarification sequence in adult-child discourse was discussed. Two types of clarification questions were identified: the repetition clarification questions, those questions that "request the first speaker repeat his initial utterance" (p. 3); and the confirmation clarification questions, those questions that request the "speaker confirm or deny the second speaker's repetition or reformulation of the first speaker's initial utterance" (p. 3). Results indicated that confirmation questions were the most frequent type of clarification requests in both teacher-child and mother-child conversations. In addition, adults varied the strategies used for requesting clarification from children according to the level of the child's language development. Children's use of clarification questions was not investigated.

Retherford (1980) examined the use of repair in three-, four-, and five-year-old children as well as other abilities in maintaining the topic of conversation under controlled conditions. The study involved a more

controlled and manipulated approach to investigating topic maintenance than had been employed by previous investigators. Each child participated in a cookie-making activity with the investigator who conversed with the child during the activity and inserted, at the appropriate time, twelve specific stimulus statements constructed around three stimulus conditions. The three conditions were as follows:

- 1) assertions made by the investigator regarding objects present in the immediate context and relevant to the activity at hand;
- 2) assertions made by the investigator regarding objects that are not present but relevant to the activity at hand; and
- 3) assertions made by the investigator regarding objects that are not present and not relevant to the activity at hand (p.39).

The third condition was included because it consisted of non-relevant contributions to the conversation in which no topic-changing markers were used. The investigator was interested in observing the children's ability to use repair to identify or question the referent. The children's responses to the investigator's stimulus statements were coded according to the type of topic relationship involved. These relationships included: structural linkage, consisting of partial or exact imitation of the stimulus sentence; topical linkage, consisting of acknowledgments, affirmation/negation of the stimulus statement, and/or added information about

the same topic; and conversational repair, including request for repetition or clarification, query of referents or topic appropriateness, and statement expressing lack of understanding.

Results indicated that, across all three conditions, children in each age group produced utterances that were topically linked, specifically through the use of acknowledgements, to the investigator's stimulus statements more frequently than any other response type. However, results indicated age differences in the frequency of responses produced in the same stimulus condition. In Condition 1, three-year-old children used structural linkage to maintain topics more often than did five-year-old children. In Condition 2, five-year-old children used topical linkage more frequently than did three-year-old children. In Condition 3, both four- and five-year-old children used topical linkage more frequently than the three-year-olds. Retherford concluded the following:

The four- and five-year-old children were apparently willing and able to continue the inappropriately introduced discourse topic, whereas the three-year-olds were not. Perhaps this stimulus condition was more difficult for the three-year-old. Without contextual support for the investigator's statements the less sophisticated strategy of repeating part or all of the stimulus statement was the chosen avenue for keeping

the conversation going for more of the three-year-olds (p. 62).

Results also indicated stimulus condition differences in the frequency of responses produced by each age group for some of the response types. Three-year-olds used structurally linked responses significantly more frequently in Condition 3 than in Conditions 1 or 2. Four- and five-year-old children used topical linkage more frequently in Condition 3 than in Condition 2. Retherford concluded that the high proportion of topical linkage responses observed in Condition 3 may have occurred as a result of topics chosen for those stimulus statements. It was stated that:

Even if the children viewed the investigator's change of topic as inappropriate or deviant, these particular topics may have invited topic continuation from the children (p. 77).

Nonverbal responses were used more frequently by all age groups in Conditions 1 and 2 than in Condition 3. Retherford questioned the relatively high frequency of nonverbal responses but noted differences in specific types used by the groups of children. The five-year-olds tended to respond nonverbally with an affirmative head nod, whereas the three-year-olds tended to ignore the stimulus statement. The investigator

speculated that perhaps the five-year-olds were more knowledgeable in understanding turntaking rules of conversation than the younger group and took their speaking turns nonverbally. The three-year-olds felt no obligation to deny, acknowledge, or add to these statements. Although the stimulus conditions elicited significantly more instances of specific topic turn types, the children still produced more topical linkage in all three conditions.

With regard to repair, Retherford reported that requests for repetition and queries about the location and/or absence of objects were the most frequent types of repair used by the children across conditions. However, very few instances of repair occurred in Condition 1. Condition 2 elicited more repairs than either of the other two conditions, with query of referent being the most frequently used repair device. It was interesting to note that in Condition 3, when the referent of the stimulus statement was absent and unrelated, children in all three age groups produced fewer instances of repair than in Condition 2. The researcher concluded that "abrupt shifts in discourse topic were not viewed by this group of children as being in need of repair" (p.96). It was unclear whether the children actually lacked the knowledge of the use of

topic shift markers or if their reluctance to initiate conversational repairs was due to politeness constraints.

With a better understanding of turntaking and topic in normal children and adults, a review of the literature regarding these communication behaviors in mentally retarded adults is appropriate.

#### Turntaking in Mentally Retarded Adults

Few investigators have looked specifically at turntaking in the communicative behavior of mentally retarded adults. Sabsay (1975) examined communicative behaviors of nine severely and profoundly retarded institutionalized adults with Down's Syndrome in natural occurring conversations. Results indicated that retarded speakers take turns as do normal adult speakers.

Abbeduto and Rosenburg (1980) examined the conversational behavior of seven mildly retarded male adults, all of whom were from a sheltered care facility for the retarded. The subjects were divided into groups of three with their conversational interactions recorded during mealtime over three different sessions. The investigator sat at each group's table but did not play an active role in the conversation unless the conversation seemed to stall or questions were directed

to him. With regard to turntaking, results indicated that there were relatively few turntaking errors overall, although individual differences were reported. For example, 23 percent of the turns for one subject involved interruptions in contrast to 19 percent of the turns for the other group members. Results also indicated that in each triad, one participant took significantly fewer turns than the others. Because this trend has been observed in nonretarded individuals also, the investigators concluded that retarded subjects use the same turntaking mechanisms as do nonretarded and that "the turntaking system used in retarded adults' conversation is as efficient as that of nonretarded adults" (p. 422). To date, no studies have examined the ability of mentally retarded adults to repair violations of turntaking.

#### Topic Maintenance Abilities in Mentally Retarded Adults

Several studies have examined the ability of mentally retarded adults to engage in cooperative conversations in natural environments. Abbeduto and Rosenberg (1980), in the investigation mentioned previously, also examined the process of information exchange in groups of mildly retarded adults. Results indicated that, for all groups, the majority of turns occurred in adjacency pairs (i.e., those pairs of turns

in which the second turn is in response to the first). Therefore, the groups were involved in an active, coordinated exchange of information. Another indication of active participation in conversation involved the use of frequent requests for more information and requests for clarification. The subjects also had the ability to respond to repair mechanisms in the conversation. The investigators stated that although the retarded adults demonstrated considerable skill in conversational interaction, there were individual differences among the subjects. Each subject seemed to have his own style of communication.

In an investigation of communicative functions in mildly mentally retarded adults, Owings and McManus (1982) found that all repetitions identified served as topic maintenance strategies. The investigators stated that:

if the client could not think of anything to say he would repeat the end of the other speaker's previous utterance once or even several times (p. 10-11).

Price-Williams and Sabsay (1979) examined the communicative competence of nine severely and profoundly retarded institutionalized adults with Down's Syndrome. The conversations of these subjects were recorded in various activities with both retardates and



nonretardates. A descriptive analysis of their interactions showed that their conversations had many of the same characteristics as those of normal conversations. Utterances of a speaker were generally in response to another's utterance. The subjects responded appropriately to summonses and questions, but frequently had difficulty answering particular types of WH-questions appropriately. The investigators reported that many of the communication problems between the retarded and nonretarded were due to the unintelligibility of the retarded, and not necessarily their lack of communication knowledge. Results also indicated that some of the subjects were capable of initiating and responding to repair. The repair devices initiated by the subjects were classified as request for repetition, request for clarification, and request for confirmation. The subjects tended to respond to repair by repeating the word or phrase in question, repeating it louder or with clearer articulation, or using paraphrasing in order to repair the misunderstanding. The investigators concluded that many of the communicative strategies of the subjects were similar to those used by young children just acquiring language. However, the investigators stated that this comparison was "dangerous" because the subjects were not children;

"they have many years of interacting with the environment and with other individuals" (p. 57).

Another investigation of the topic performance of mentally retarded adults was conducted by Bedrosian (1979). The conversations of two mentally retarded adult males with peers, parents, and with a normal six-year-old child in natural discourse were recorded and analyzed using specific topic conversational analysis procedures. Topic initiating turns were coded for the type of subject matter initiated and the type of pragmatic intent involved. All other turns were coded as either continuous, discontinuous, or both continuous and discontinuous discourse. With regard to topic maintenance, results indicated that the majority of continuous discourse turns for both subjects consisted of acknowledgments and responses to questions. Thus, the subjects allowed the other participants to do the majority of the conversational "work". The investigator concluded that the subjects' frequent use of acknowledgments was reflected in the following sociolinguistic rule:

Even when I don't understand everything that is being talked about, I can still participate in the conversation by the use of acknowledgements. In this way, I can let the speaker know that at least I was listening (p.48).

Both subjects used repair devices, including requests for repetition, requests for clarification, and requests for identification of the referent. In terms of discontinuous discourse, introduction of new topics and reintroduction of previous topics were used most frequently. With the exception of one interaction by one subject, both subjects' turns were characterized by more continuous discourse turns than discontinuous turns. Thus, both subjects were able to use topic maintenance strategies. The occurrence of both continuous and discontinuous discourse within a single turn was not frequent, but did reflect the following sociolinguistic rule:

If I want to initiate a new topic in a conversation, I can do so in a polite manner by first maintaining the topic of the preceding speaker and initiating my own topic (p.50).

In summary, all of the studies examining topic maintenance abilities in mentally retarded adults thus far have been conducted within the context of natural discourse. A controlled investigation of topic maintenance similar to that reported by Retherford (1980) has not been conducted.

Although turntaking and topic in the mentally retarded adult have begun to be examined in a naturalistic context, studies involving controlled conditions in order to identify more specific abilities in these areas are warranted. To date, no studies have examined the strategies, if any, of mentally retarded adults to repair violations of turntaking. In addition, no studies have systematically examined the abilities of mentally retarded adults to maintain topics depending on the specification of the referent. The need for research in these two areas is warranted.

#### Statement of the Problem

The purpose of this study was twofold: first, to examine turntaking violation repair strategies of mentally retarded adults; and second, to examine their topic maintenance abilities under the three conditions specified by Retherford (1980):

- 1) when assertions were made regarding objects present in the immediate context and relevant to the activity at hand;
- 2) when assertions were made regarding objects not present in the immediate context and relevant to the activity at hand;
- 3) when assertions were made regarding objects that were not present and not relevant to the activity at hand (p.39).

Specifically, the questions raised were as follows:

- 1) What repair strategies, if any, will mentally retarded adults use when their turns are interrupted?
- 2) What is the effect of the referent being present or absent, related or unrelated, on the ability of mentally retarded adults to maintain the discourse topic across conditions?
- 3) Will mentally retarded adults initiate referent repair when the appropriate means for marking a change in discourse topic have not been employed?

Chapter II  
METHODOLOGY

Subjects

Subjects consisted of four mentally retarded adults, two males and two females, selected from a state institution. The subjects ranged in age from 27 to 37 years, and had American Association on Mental Deficiency (AAMD) classifications of moderate mental retardation (Grossman, 1973). Full scale IQ's ranged from 41 to 55. Each subject had resided in an institutional setting for a minimum of twelve years. Criteria for subject selection were that the individual:

- 1) be functioning in Piaget's preoperational period of cognitive development with comparative levels of language comprehension and production;
- 2) have intelligible speech performance; and
- 3) use primarily verbal, as opposed to nonverbal means of communication.

Procedures for assessing cognitive levels of development across subjects involved the following informal Piagetian tasks: seriation, classification, number, transitivity, conservation, and drawing (see Appendix A). Comprehension assessment procedures

included the Utah Test of Language Development (Mecham, Jex, & Jones, 1967) and the Oral Commissions Subtest of the Detroit Test of Learning Aptitude (Baker & Leland, 1967). A mean length of utterance (MLU) in morphemes (Chapman, 1981) was computed as a general measure of each subject's syntactic complexity of language production. Data used for computing each MLU were derived from a ten-minute interaction with the investigator.

Individual subject descriptions are as follows:

Subject 1: Subject 1 was a female, 28 years and 4 months, with a diagnosis of moderate mental retardation due to unknown prenatal influence and other unspecified cerebral malformation. She had resided at the institution for three years. The subject had a reported verbal IQ of 58 (see Table 1) as measured with the Wechsler Adult Intelligence Scale (Wechsler, 1955). Results of the informal cognitive assessment indicated she was functioning in: early to middle preoperations (2.1 to 5.6 years) for dichotomies; middle to late preoperations (4.1 to 7 years) for free sorting; and late preoperations (5.7 to 7 years) for seriation and drawing. She mastered two of the transitivity tasks but did not master any of the conservation tasks (see Table 2). In terms of her level of language comprehension,

Table 1

Identifying Information for Each Subject - Sex, Age, Diagnosis, Standardized IQ scores

Subject	Sex	Chronological Age (Years)	Diagnosis		Standardized IQ Scores			
			Medical	Degree of Mental Retardation	WAIS			LIPS
					Verbal IQ Score	Performance IQ Score	Full-Scale IQ Score	
1	Female	28.4	Unknown	Moderate	58	56	55	5-9
2	Female	27.3	Unspecified	Moderate	-	-	-	5-3
3	Male	37.8	Prenatal injury	Moderate	49	38	41	-
4	Male	30.3	Unspecified	Moderate	-	-	-	-





the subject exhibited a Language Age of 7 Years, 7 Months on the Utah Test of Language Development, and a mental age of 8 years, 0 months on the Oral Commissions Subtest (see Table 3). The subject had an MLU of 5.0 (see Table 4) corresponding to Brown's Post Stage V (47 to 58 months). Results of a hearing screening indicated normal hearing acuity.

Subject 2: Subject 2 was a female, 27 years and 3 months, with a diagnosis of moderate mental retardation due to other unspecified conditions. She had resided in various state institutions during the past 15 years. The subject had an IQ of 45 and a mental age of 5 years, 3 months (see Table 1) as measured with the Leiter Intelligence Performance Scale (Leiter, 1969). Results of the informal cognitive assessment indicated that she was functioning in: early to middle preoperations (2.1 to 5.6 years) for seriation and dichotomies; middle to late preoperations (4.1 to 7 years) for free sorting; and late preoperations (5.7 to 7 years) for one-to-one correspondence and drawing. She had mastered the transitivity tasks but had not mastered the conservation tasks (see Table 2). In terms of her level of language comprehension, the subject exhibited a Language Age of 7 Years, 1 Month on the Utah Test of Language Development, and a mental age of 7 years, 6 months on the Oral

Table 3

Comprehension Levels of Development for each Subject

<u>Subject</u>	<u>Oral Commissions Subtest</u> (Mental Age in Years)	<u>Utah Test</u> (Language Age in Years)
1	8.0	7.7
2	7.6	7.1
3	5.6	5.10
4	7.0	5.6

Table 4

Mean Length of Utterance (MLU) in Morphemes for Each Subject

<u>Subject</u>	<u>No. Morphemes</u> <u>No. Utterances</u>	<u>MLU</u>	<u>Corresponding</u> <u>Brown's Stage</u>
1	$\frac{250}{50}$	5.0	Post Stage V
2	$\frac{221}{50}$	4.42	Late Stage V
3	$\frac{248}{50}$	4.96	Post Stage V
4	$\frac{208}{50}$	4.16	Late Stage V

Commissions Subtest (see Table 3). The subject had an MLU of 4.42 (see Table 4) corresponding to Brown's Late Stage V (43 to 46 months). Results of an audiological evaluation indicated normal hearing acuity.

Subject 3: Subject 3 was a male, 37 years and 8 months, with a diagnosis of moderate mental retardation due to prenatal injury (trauma to maternal abdomen in last trimester of pregnancy), secondary cranial anomaly, other convulsive disorder, and other psychiatric impairment. He had been institutionalized for 34 years. The subject had a reported verbal IQ of 49 (see Table 1) as measured on the Wechsler Adult Intelligence Scale (Wechsler, 1955). Results of the informal cognitive assessment indicated that he was functioning in early preoperations (2.1 to 4 years) for free sorting and drawing, and in early to middle preoperations (2.1 to 5.6 years) for seriation and dichotomies. The subject mastered one-to-one correspondence but had not mastered transitivity or conservation tasks (see Table 2). In terms of his level of language comprehension, the subject exhibited a Language Age of 5 Years, 10 Months on the Utah Test of Language Development, and a mental age of 5 years, 6 months on the Oral Commissions Subtest (see Table 3). The subject had an MLU of 4.96 (see Table 4) corresponding to Brown's Post Stage V (47 to 58

months). Results of a hearing screening indicated normal hearing acuity.

Subject 4: Subject 4 was a male, 30 years and 3 months, with a diagnosis of moderate mental retardation due to other unspecified conditions (see Table 1). He had resided in institutions for 16 years. No IQ scores were reported. Results of the informal cognitive assessment indicated he was functioning in: early preoperations (2.1 to 4 years) for free sorting; early to middle preoperations (2.1 to 5.6 years) for seriation and dichotomies; and late preoperations (5.7 to 7 years) for drawing. The subject mastered transitivity of weight but did not master any of the other transitivity or conservation tasks (see Table 2). In terms of his level of language comprehension, the subject exhibited a Language Age of 5 Years, 6 Months on the Utah Test of Language Development, and a mental age of 7 years, 0 months on the Oral Commissions Subtest (see Table 3). The subject had an MLU of 4.16 (see Table 4) corresponding to Brown's Late Stage V (43 to 46 months). Results of an audiological screening indicated his hearing was within normal limits.

#### Materials

Materials used in the present study involved the utensils and ingredients necessary for making popcorn.

Those materials present at the beginning of the activity included: a General Electric electric popcorn popper, cooking oil, 1/4 cup measuring cup, 1/3 cup measuring cup, and a bag of popcorn. Several materials were concealed in a paper sack until the appropriate time in the activity. These materials included: salt, butter, a large mixing spoon, and 2 small bowls. A Pioneer audio-cassette tape recorder (Centrex KD-12) was used to record the verbal interaction of the investigator and the subject.

#### Setting

Each popcorn activity took place in a small room used for speech and language management at the state institution. A 5 x 4 foot table and two chairs were the only furnishings present in the room. The investigator sat to the right of the subject and the popcorn popper was placed on the table between the subject and the investigator. The tape recorder was positioned on the table approximately 2½ feet directly in front of the subject. All other materials, with the exception of those concealed in a paper sack, were located on the table in front of the investigator.

### Stimulus Statements

Retherford (1980) identified three stimulus conditions affecting children's contributions to conversation. These three conditions were:

- 1) assertions made by the investigator regarding objects present in the immediate context and relevant to the activity at hand;
- 2) assertions made by the investigator regarding objects that are not present but relevant to the activity at hand; and
- 3) assertions made by the investigator regarding objects that are not present and not relevant to the activity at hand (p.39).

The present study examined these same three stimulus conditions using a popcorn popping activity. Five stimulus statements were constructed for each of the three conditions. Two of the five statements for each condition were planned interruptions to examine each subject's reaction to violation of turntaking rules. All stimuli were modeled after Retherford (1980) but were modified to pertain to the popcorn activity and topics with which the subjects might be familiar. The stimulus statements used in this study are presented in Table 5.

### Procedure

Each subject participated in a popcorn popping



Table 5

Stimulus Statements in Order of Presentation

Order of Presentation	STIMULUS STATEMENT	Condition
1.	This popcorn is yellow.	1
2.	Oil helps in cooking.	1
3.	Butter is yellow and cold.	2
4.	Television is fun to watch.	3*
5.	Salt tastes good on food.	2
6.	Leaves fall off of trees.	3
7.	Movie theaters sell popcorn.	2*
8.	A spoon is good for stirring.	2
9.	I can hear the popcorn popping.	1*
10.	I like to swim.	3
11.	I have a cat named Muffy.	3
12.	A farmer grows popcorn.	2*
13.	That's a hot popper.	1
14.	Birthday cakes have candles.	3*
15.	This popcorn smells good.	1*

\* Indicates planned interruptions

activity with the investigator. When the subject entered the room, the tape recorder was turned on and the activity was begun.

The subject was asked to help the investigator prepare the popcorn by pouring the popcorn and oil into the electric popper. During the activity, the investigator centered the conversation on the popcorn (e.g., the auditory and visual aspects associated with popping corn, materials and procedures necessary for making popcorn, previous experience with popping corn, and frequency of eating popcorn) using general requests for information and declarative statements. The investigator maintained all popcorn-oriented topics initiated by the subject. When the subject initiated a topic other than popcorn, the investigator commented on that topic and then directed the conversation back to the popcorn activity. It was occasionally necessary for the investigator to question the subject regarding the day's activities or another familiar topic in order to initiate conversation for purposes of planned interruptions.

The stimulus statements were presented by the investigator in a predetermined order throughout the activity. Each stimulus statement was produced within

the investigator's normally occurring speaking turn, with the exception of the interrupter stimulus statements which were produced during the subject's turn. After each stimulus statement, the investigator initiated eye contact with the subject, and then waited for approximately ten to twenty seconds for a verbal response before continuing the conversation. Specific nonverbal responses exhibited by the subject following a stimulus statement were recorded only in cases of no verbal responses.

After the popcorn was popped, buttered, and transferred to another bowl, the subject was invited to eat the popcorn. The activity ended at that time.

#### Transcription

For each subject, speaking turns immediately following all stimulus statements, as well as those utterances occurring during interrupter stimulus statements, were transcribed without any grammatical alterations made. The pause times noted above were recorded using a stopwatch.

#### Data Analysis

For each subject, interrupted turns, as well as those following the interrupter stimulus statements,

were coded according to the type of device used for repairing turntaking violations (Sacks, Schegloff, & Jefferson, 1974). In addition, verbal and nonverbal turns following stimulus statements were coded for the type of topic relationship involved. If the subject's turn had a pause greater than ten seconds following his/her verbal response to a stimulus statement, the remaining utterances in his/her turn were not coded. According to the research of Garvey and Berninger (1981), either speaker could have had the floor at that time. The topic analysis procedures applied to the data were derived from the research reported by Bedrosian (1981) and Retherford (1980). The general topic categories included: continuous discourse, shading, discontinuous discourse, repair of referent, nonverbal responses, and combination turns. (See Appendix B for specific coding procedures and definitions.) Following the coding, the frequencies of repair devices and topic turn types were tallied across conditions for each subject.

#### Reliability

Reliability of the transcriptions was determined by a trained graduate student in speech and language pathology who listened to the tapes while reading the

transcriptions and made any necessary corrections. One training session was held to explain and demonstrate the procedures and symbols used for transcription.

Interjudge reliability between the investigator and the reliability listener for all the transcriptions was 98 percent.

Reliability of the turntaking and topic coding was obtained for all the data collected for each subject. Several training sessions were held with the reliability rater, a professor in speech and language pathology, to discuss the analysis procedures and to practice coding data from a pilot study. The reliability rater was given the coding definitions, a copy of the investigator's transcriptions, and the audio-tape of each subject to listen to while coding. Interrater reliability agreement was 95 percent for the data analysis. After reliability was determined, differences in coding were discussed and resolved.

## Chapter III

### RESULTS

The purpose of this study was twofold: first, to examine turntaking violation repair strategies of mentally retarded adults; and second, to examine their topic maintenance abilities under the same three conditions specified by Retherford (1980):

- 1) when assertions were made regarding objects present in the immediate context and relevant to the activity at hand;
- 2) when assertions were made regarding objects not present in the immediate context and relevant to the activity at hand;
- 3) when assertions were made regarding objects that were not present and not relevant to the activity at hand (p. 39).

For each subject, interrupted turns, as well as those following the interrupter stimulus statements, were coded according to the type of device used for repairing turntaking violations (Sacks, Schegloff, & Jefferson, 1974). Verbal and nonverbal turns following stimulus statements were coded for the type of topic relationship involved. Results for each subject and across subjects were as follows:

Subject 1

Turntaking. (See Table 6.) Across the three conditions, the only repair device used by Subject 1 for each turntaking violation was that of stopped talking.

Topic. In Condition 1, the general topic turn type exhibited by Subject 1 for four of the five stimulus statements was shading (see Table 7). Specifically, two types of shading were used regardless of interruptions: shading in the here-and-now, and memory shading (see Table 8). The remaining topic turn type consisted of a nonverbal response.

In Condition 2, an equal number of turns involving shading and repair of referent occurred (see Table 7). Both examples of shading were in the here-and-now regardless of interruptions (see Table 8). Repair of referent consisted of two requests for clarification.

Three different general response types were used in Condition 3 (see Table 7): continuous discourse, involving topic incorporating after a stimulus statement and acknowledgement after an interrupter stimulus statement (see Table 8); repair of referent, involving request for clarification and request for confirmation; and discontinuous discourse, involving reintroduction of a topic after an interrupter stimulus statement.

Table 6

Frequency of Repair Devices for Turntaking Violations  
Across Conditions for Subject 1

Repair Device	Condition		
	1	2	3
Stopped Talking	2	2	2
Reintroduction of Interrupted Utterance			
Reintroduction of Topic of Interrupted Utterance			
No Repair by Continued Talking			
Total Number of Different Repair Devices	1	1	1



Table 7

Frequency of General Topic Turn Types Across Conditions  
for Subject 1

General Topic Turn Type	Condition		
	1	2	3
Continuous Discourse			2
Shading	4	2	
Discontinuous Discourse			1
Repair of Referent		2	2
Nonverbal Responses	1	1	
Combination Turns			

Frequency of Specific Topic Turn Types Across Conditions for Subject 1

Specific Topic Turn Type	Condition					
	1		2		3	
	# after Stimulus Statement	# after Interrupter Statement	# after Stimulus Statement	# after Interrupter Statement	# after Stimulus Statement	# after Interrupter Statement
<u>Continuous Discourse (CD)</u>						
<u>Exact Imitation</u>						
<u>Exact Imitation With Expansion</u>						
<u>Partial Imitation</u>						
<u>Partial Imitation with Expansion</u>						
<u>Topic Incorporating</u>					1	
<u>Alternative</u>						
<u>Acknowledgment</u>						1
<u>Incomplete Response</u>						
<u>Shading (SH)</u>						
<u>Here-&amp;-Now</u>	1	2	1	1		
<u>Memory</u>	1					
<u>Future</u>						
<u>Discontinuous Discourse (DD)</u>						
<u>Reintroduction of Topic</u>						1
<u>New Topic Initiation</u>						
<u>Consecutive Topic Initiation</u>						
<u>Repair of Referent</u>						
<u>Request for Repetition</u>						
<u>Request for Clarification</u>			2		1	
<u>Request for Confirmation</u>					1	
<u>Query of Referent</u>						
<u>Statement/ Question regarding Absence of Referents</u>						
<u>Statement/ Question regarding Appropriateness of Topic</u>						
<u>Statement Expressing Lack of Understanding</u>						
<u>Nonverbal Attention directed to Investigator</u>						
<u>Attention directed to activity</u>	1			1		
<u>Combination</u>						
<u>CD + SH</u>						
<u>CD + DD</u>						

Subject 2

Turntaking. (See Table 9.) In Condition 1, Subject 2 exhibited only one occurrence of a repair device for turntaking violations involving a discontinuation of talking. The greatest variety of repair devices was exhibited in Condition 2, with each type of repair device being employed. The repair devices of stopped talking and reintroduction of an interrupted utterance were exhibited in Condition 3.

Topic. In Condition 1, the general topic turn type exhibited by Subject 2 for four of the five stimulus statements involved continuous discourse (see Table 10). Specifically, acknowledgments were used regardless of interruptions (see Table 11). The remaining topic turn type consisted of a nonverbal response.

In Condition 2, the majority of topic turn types exhibited by Subject 2 were continuous discourse and discontinuous discourse (see Table 10). Specifically, continuous discourse consisted of acknowledgments, and discontinuous discourse consisted of reintroduction of topic following each interrupter stimulus statement (see Table 11). The remaining topic turn type involved a combination turn consisting of continuous discourse and shading.

Four different general response types were used in Condition 3 (see Table 10): continuous discourse,

Table 9

Frequency of Repair Devices for Turntaking Violations  
Across Conditions for Subject 2

Repair Device	Condition		
	1	2	3
Stopped Talking	1	2	2
Reintroduction of Interrupted Utterance		1	1
Reintroduction of Topic of Interrupted Utterance		1	
No Repair by Continued Talking	1		
Total Number of Different Repair Devices	1	3	2

Table 10

Frequency of General Topic Turn Types Across Conditions  
for Subject 2

General Topic Turn Type	Condition		
	1	2	3
Continuous Discourse	4	2	1
Shading			
Discontinuous Discourse		2	1
Repair of Referent			
Nonverbal Responses	1		1
Combination Turns		1	2

Table 11

## Frequency of Specific Topic Turn Types Across Conditions for Subject 2

Specific Topic Turn Type	Condition					
	1		2		3	
	# after Stimulus Statement	# after Interrupter Stimulus Statement	# after Stimulus Statement	# after Interrupter Stimulus Statement	# after Stimulus Statement	# after Interrupter Stimulus Statement
<u>Continuous Discourse (CD)</u>						
Exact Imitation						
Exact Imitation with Expansion						
Partial Imitation						
Partial Imitation with Expansion						
Topic Incorporating Alternative						
Acknowledgment Incomplete Response	4	2	2		1	
<u>Shading (SH)</u>						
Here-&-Now						
Memory						
Future						
<u>Discontinuous Discourse (DD)</u>						
Reintroduction of Topic				2		1
New Topic Initiation						
Consecutive Topic Initiation						
Repair of Referent						
Request for Repetition						
Request for Clarification						
Request for Confirmation						
Query of Referent						
Statement/ Question regarding Absence of Referents						
Statement/ Question regarding Appropriateness of Topic						
Statement Expressing Lack of Understanding						
Nonverbal Attention directed to investigator						
Attention directed to activity	1					1
<u>Combination</u>						
CD + SH			1			
CD + DD					2	

involving an acknowledgment following a stimulus statement (see Table 11); discontinuous discourse, involving reintroduction of a topic following an interrupter stimulus statement; nonverbal response, involving attention directed to the activity following an interrupter stimulus statement; and combination turns, consisting of continuous and discontinuous discourse following two stimulus statements. Repair of referent was not exhibited in this condition.

### Subject 3

Turntaking. (See Table 12.) Across the three conditions, the primary repair device used by Subject 3 for turntaking violations was that of stopped talking. The repair device of reintroduction of topic of interrupted utterance was exhibited only in Condition 2. In Condition 1, one of the interrupter stimulus statements could not be considered a true interruption because the investigator initiated the statement approximately twenty-five hundredths of a second following the subject's turn. It was unclear whether or not the subject would have continued his turn if the investigator had not begun talking.

Topic. In Condition 1, the general topic turn type (see Table 13) exhibited by Subject 3 for four of the five stimulus statements was continuous discourse, involving the use acknowledgments (see Table 14). The

Table 12

Frequency of Repair Devices for Turntaking Violations  
Across Conditions for Subject 3

Repair Device	Condition		
	1*	2	3
Stopped Talking	2	2	2
Reintroduction of Interrupted Utterance			
Reintroduction of Topic of Interrupted Utterance		1	
No Repair by Continued Talking			
Total Number of Different Repair Devices	1	2	1

\*One of these interruptions cannot be considered a true interruption.



Table 13

Frequency of General Topic Turn Types Across Conditions  
for Subject 3

General Topic Turn Type	Condition		
	1	2	3
Continuous Discourse	4	3	4
Shading			
Discontinuous Discourse		2	
Repair of Referent			1
Nonverbal Responses	1		
Combination Turns			

Table 14

## Frequency of Specific Topic Turn Types Across Conditions for Subject 3

Specific Topic Turn Type	Condition					
	1		2		3	
	# after Stimulus Statement	# after Interrupter Stimulus Statement	# after Stimulus Statement	# after Interrupter Stimulus Statement	# after Stimulus Statement	# after Interrupter Stimulus Statement
<u>Continuous Discourse (CD)</u>						
Exact Imitation						
Exact Imitation with Expansion					1	
Partial Imitation						
Partial Imitation with Expansion						
Topic Incorporating Alternative						
Acknowledgment	3	1	2	1	1	2
Incomplete Response						
<u>Shading (SH)</u>						
Here-&-Now						
Memory						
Future						
<u>Discontinuous Discourse (DD)</u>						
Reintroduction of Topic				1		
New Topic Initiation						
Consecutive Topic Initiation			1			
<u>Repair of Referent</u>						
Request for Repetition						
Request for Clarification						
Request for Confirmation					1	
Query of Referent						
Statement/Question regarding						
Absence of Referents						
Statement/Question regarding						
Appropriateness of Topic						
Statement Expressing Lack of Understanding						
<u>Nonverbal Attention</u>						
directed to Investigator						
Attention directed to activity		1				
<u>Combination</u>						
CD + SH						
CD + DD						

remaining topic turn type consisted of a nonverbal response following an interrupter stimulus statement.

In Condition 2, approximately an equal number of continuous discourse and discontinuous discourse turn types were exhibited (see Table 13). Specifically, continuous discourse turns consisted of acknowledgments regardless of interruptions (see Table 14). Discontinuous discourse involved reintroduction of a topic and consecutive topic initiations.

In Condition 3, the general topic turn type exhibited for four of the five stimulus statements, regardless of interruptions, was continuous discourse (see Table 13). Specifically, the majority of these turns consisted of acknowledgments (see Table 14). The remaining topic turn type consisted of a repair of referent involving a request for confirmation.

#### Subject 4

Turntaking. (See Table 15.) Across the three conditions, the majority of repair devices used by Subject 4 for turntaking violations involved discontinuation of talking. The repair device of reintroduction of interrupted utterance was used for two of the six turntaking violations.

Topic. In Condition 1, the general topic turn type exhibited by Subject 4 in response to four of the five stimulus statements was continuous discourse (see

Table 15

Frequency of Repair Devices for Turntaking Violations  
Across Conditions for Subject 4

Repair Device	Condition		
	1	2	3
Stopped Talking	2	2	2
Reintroduction of Interrupted Utterance	1		1
Reintroduction of Topic of Interrupted Utterance			
No Repair by Continued Talking			
Total Number of Different Repair Devices	2	1	2

Table 16). Specifically, partial imitation and a combination turn consisting of an acknowledgment and topic incorporating occurred following stimulus statements. An acknowledgment also occurred following an interrupter stimulus statement (see Table 17). The remaining topic turn type consisted of a combination turn following an interrupter stimulus statement (see Table 17).

In Condition 2, four different general turn types were used (see Table 16): continuous discourse, involving partial imitation following a stimulus statement (see Table 17); discontinuous discourse, involving reintroduction of a topic following a stimulus statement; repair of referent, involving request for confirmation following an interrupter stimulus statement; and combination turns, consisting of continuous and discontinuous discourse following both a stimulus statement and an interrupter stimulus statement.

The four general turn types exhibited in Condition 2 were also exhibited in Condition 3 (see Table 16): continuous discourse, consisting of an acknowledgment, regardless of an interruption; discontinuous discourse, consisting of reintroduction of a topic following an interrupter stimulus statement; repair of referent, consisting of a request for confirmation following a

Table 16

Frequency of General Topic Turn Types Across Conditions  
for Subject 4

General Topic Turn Type	Condition		
	1	2	3
Continuous Discourse	4	1	2
Shading			
Discontinuous Discourse		1	1
Repair of Referent		1	1
Nonverbal Responses			
Combination Turns	1	2	1

Frequency of Specific Topic Turn Types Across Conditions for Subject 4

Specific Topic Turn Type	Condition					
	1		2		3	
	# after Stimulus Statement	# after Interrupter Stimulus Statement	# after Stimulus Statement	# after Interrupter Stimulus Statement	# after Stimulus Statement	# after Interrupter Stimulus Statement
<u>Continuous Discourse (CD)</u>						
Exact Imitation						
Exact Imitation with Expansion						
Partial Imitation	2		1			
Partial Imitation with Expansion						
Topic Incorporating	1					
Alternative						
Acknowledgment	1	1			1	1
Incomplete Response						
<u>Shading (SH)</u>						
Here-&-Now						
Memory						
Future						
<u>Discontinuous Discourse (DD)</u>						
Reintroduction of Topic			1			1
New Topic Initiation						
Consecutive Topic Initiation						
Repair of Referent						
Request for Repetition						
Request for Clarification						
Request for Confirmation				1	1	
Query of Referent						
Statement/ Question regarding Absence of Referents						
Statement/ Question regarding Appropriateness of Topic						
Statement Expressing Lack of Understanding						
<u>Nonverbal</u>						
Attention directed to Investigator						
Attention directed to activity						
<u>Combination</u>						
CD + SH						
CD + DD		1	1	1	1	

stimulus statement; and combination turn, consisting of continuous and discontinuous discourse.

#### Turntaking Across Subjects

Across subjects and conditions, the repair device primarily used for turntaking violations was that of stopped talking (see Table 18). Reintroduction of interrupted utterance was employed by Subjects 2 and 4; and reintroduction of topic of interrupted utterance was exhibited only by Subjects 2 and 3. Across subjects, no repair was exhibited only once by Subject 2.

#### Topic Across Subjects

Subjects 2, 3, and 4 used continuous discourse as the primary topic turn type in Condition 1 (see Table 19). For these subjects, continuous discourse consisted primarily of the use of acknowledgements as noted previously. Shading was the primary topic turn type exhibited by Subject 1. Discontinuous discourse and repair of referent were not exhibited across subjects for the first condition. Nonverbal responses were used more frequently in Condition 1 than in Conditions 2 and 3.

In Condition 2, continuous discourse and discontinuous discourse were exhibited by the majority of subjects (see Table 19). Again, continuous discourse turns consisted primarily of acknowledgements



Table 18

Frequency of Repair Devices for Turntaking Violations  
Across Conditions for Each Subject

Repair Type	Condition											
	1 Subject				2 Subject				3 Subject			
	1	2	3	4	1	2	3	4	1	2	3	4
Stopped Talking	2	1	2	2	2	2	2	2	2	2	2	2
Reintroduction of Interrupted Utterance				1		1					1	1
Reintroduction of Topic of Interrupted Utterance						1	1					
No Repair by Continued Talking		1										
Total Number of Different Repair Devices	1	1	1	2	1	3	2	1	1	2	1	2

Table 19

Frequency of General Turntypes Across Conditions  
For Each Subject

General Turn Type	Condition											
	1				2				3			
	Subject				Subject				Subject			
	1	2	3	4	1	2	3	4	1	2	3	4
Continuous Discourse		4	4	4		2	3	1	2	1	4	2
Shading	4				2							
Discontinuous Discourse						2	2	1	1	1		1
Repair of Referent					2			1	2		1	1
Nonverbal Responses	1	1	1		1					1		
Combination Turns				1		1	2		2			1

as noted previously. Shading and repair of referent involving two requests for clarification were the primary topic turn types exhibited by Subject 1. Repair of referent involving one request for confirmation was also exhibited by Subject 4. Combination turns were exhibited only by Subjects 2 and 4.

Finally, in Condition 3, continuous discourse turns occurred the most frequently of all turn types exhibited across subjects (see Table 19). Again, continuous discourse turns consisted primarily of acknowledgements. Discontinuous discourse turn types were exhibited less frequently in Condition 3 than in Condition 2. Repair of referent was exhibited by all subjects, with the exception of Subject 2, and was used more frequently in Condition 3 than in Condition 2. The specific type of repair involved either request for clarification or confirmation. Repair types involving queries of referent or appropriateness of topic were not exhibited. Combination turns were again exhibited only by Subjects 2 and 4, and consisted primarily of continuous and discontinuous discourse.

## Chapter IV

### DISCUSSION

This study examined mentally retarded adults' turntaking repair strategies and topic maintenance abilities under the same three conditions specified by Retherford (1980).

#### Turntaking

Results indicated that each subject exhibited at least one type of repair strategy for dealing with turntaking violations. Although the primary repair device involved discontinuation of talking upon interruption, other repair devices involving reintroductions were employed. These findings were similar to those reported by Sacks, Schegloff, and Jefferson (1974) regarding normal adult strategies for repairing turntaking violations.

Repair devices involving reintroductions were primarily used by Subjects 2 and 4. An informal assessment of the data revealed that in order to engage these subjects in conversation so that the interrupter stimulus statement could be employed, the investigator was required to use requests for information related to the

subjects themselves. The reintroduction repair devices may have been used by the subjects in order to satisfy their obligation as a listener to respond to a question (Folger & Puck, 1976). A further examination of the turntaking repair devices employed by this population in response to declarative statements versus requests for information is warranted.

Because mentally retarded adults have been found to exhibit different styles of interaction depending on the other participants involved (Bedrosian, 1979; Owings & McManus, 1982), it is possible that they might employ different repair strategies when conversing with their peers than with an adult authority figure. This area warrants further investigation.

Future research should also carefully consider turn-yielding cues (Wiemann & Knapp, 1975) in order to ensure precise interruptions. Finally, an investigation of turntaking repair devices used by normal language learning children should be conducted in order to provide developmental data from which comparisons to various clinical populations can be drawn.

#### Topic

The results of this study indicated that the majority of subjects maintained the topic of conversation using continuous discourse, regardless of the referent

being present or absent, related or unrelated. The primary type of continuous discourse employed by these subjects involved the use of acknowledgements which was also observed in the study conducted by Bedrosian (1979). Nonverbal responses occurred more frequently in Condition 1 than in Conditions 2 and 3, which could possibly be attributed to the obviousness of the conversation. These results were similar to those reported by Retherford (1980) regarding preschool children functioning at the preoperational level.

In terms of repair of referent, results indicated that all subjects exhibited repair with the exception of Subject 2. Repair of referent was used more frequently in Condition 3 than in Condition 2, and primarily involved requests for confirmation. These findings were different from those reported by Retherford (1980) in that the preschool children in her study used repair more frequently in Condition 2, with query of referent being the most frequently used repair device in that condition than in Condition 3, which primarily involved requests for repetition. The repair devices used by the mentally retarded subjects in Condition 3 appeared slightly more sophisticated than those used by the preschool children, which could perhaps be due to the subjects' longer social histories (Price-Williams &

Sabsay, 1979). Finally, the finding that the subjects did not question the appropriateness of topic changes in Condition 3 was similar to that reported by Retherford. This finding might be attributed to the possibility that the subjects were either unaware of the conversational rules governing the marking of topic changes (Keenan & Schieffelin, 1976), or that they were in a social position preventing them from questioning the conversational performance of an authority figure. An investigation of abrupt change of topic performance in mentally retarded adult-peer interaction, therefore, is warranted.

Discontinuous discourse was exhibited by all subjects with the exception of Subject 1. A greater frequency of this turn type was exhibited in Condition 2 than in Condition 3. Discontinuous discourse may have functioned as a compensatory strategy (Kirchner & Skarakis-Doyle, 1983) for staying in a conversation when not knowing how to maintain the discourse topic. Similar speculations could be made regarding the use of combination turns, consisting of an acknowledgment and a topic change. The increased use of these turns by Subjects 2 and 4 in Conditions 2 and 3 may have been the result of the subjects' inability to effectively use repair of the referent. A further examination of

compensatory strategies employed in the mentally retarded adult population is warranted.

Results indicated that the topic performance of Subject 1 was different from that of the other subjects specifically in terms of the use of shading. Brinton and Fujiki (1983) suggested that shading is a more sophisticated conversational strategy used more frequently by adults than by children. The use of shading by Subject 1 could be related to her greater language production and comprehension abilities. Although the level of cognitive development was similar across subjects, Subject 1 demonstrated a different conversational strategy, supporting the notion that the mentally retarded must be considered as a heterogeneous and not a homogeneous population (Muma, 1978).

#### Clinical Implications

A few clinical implications of the findings are evident. First, the procedures described in this study could be used by speech and language clinicians in assessing turntaking repair and topic maintenance strategies of mentally retarded adults. In addition to assessing conversational skills in natural discourse, elicitation procedures such as these may provide a more complete description of the client's pragmatic performance.



With regard to language intervention, another clinical implication of the findings is that it may be necessary for clinicians to teach specific conversational behaviors to those mentally retarded adults who lack a variety of strategies needed for dealing with turntaking violations and/or maintaining the discourse topic. For example, reintroductions of interrupted utterances, various types of referent repair, or a greater variety of continuous discourse turns could be taught.

Finally, the clinician could consider the nature of the conversational referent used in language assessment and intervention. Referents in the here-and-now might elicit only verbal and/or nonverbal acknowledgments due to the obviousness of the conversation. The clinician, therefore, might consider displacement (Spadlin & Siegel, 1981) involving memory- or future-related topics in order to elicit a greater variety of discourse turns, both in assessment and intervention. With a better understanding of conversational skills, clinicians will be able to develop more effective language programs.

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## APPENDIX A

### PROCEDURES FOR ASSESSING COGNITIVE LEVELS OF DEVELOPMENT

The cognitive assessment procedures employed across subjects were compiled by Bedrosian (1981) and were derived primarily from the research of Dihoff (1976) and Gill (1979). The assessment involved the following informal Piagetian tasks: seriation, classification, number, transitivity, conservation of length, conservation of weight and drawing. The specific procedures used were as follows:

#### I. Seriation

##### A. Seriation of Ten Items

###### 1. Sets of Materials

- a. Ten nails, each varying in length by  $\frac{1}{8}$  to  $\frac{1}{4}$  inch.
- b. Ten straws, each varying in length by  $\frac{1}{4}$  inch.
- c. Ten wooden circular blocks, each varying in width by  $\frac{1}{8}$  inch.

###### 2. Procedure (Gill, 1979)

- a. One set of items was laid out in mixed up order.
- b. The subject was instructed to order them from smallest to largest: "Line these up. Put the

- smallest one here (point) and the largest one here (point)."
- c. The subject was asked to modify the ordering of his/her response if not satisfied:  
"Are they the way you want them? Check and make sure" (Dihoff, 1976).
- d. The investigator questioned why the subject ordered the items as he/she did: "Why did you put them like this (point across the array)?"
- e. These procedures were repeated for each set of materials listed in I.A.1.
3. Recording of Response (Copeland, 1974)
- a. Stage I: Early to Middle Preoperations (2.1 to 5.6 Years)
- \_\_\_ Repeated sequence of big one, little one.
- \_\_\_ Arranged items in sets of three small, middle-sized, and large.
- \_\_\_ Other:
- b. Stage II: Late Preoperations (5.7 to 7 Years)
- \_\_\_ Successful in arranging the items correctly, but uses a trial and error procedure (chose objects at random; several items tried in one place; may change objects from one part of series to another).
- \_\_\_ Other:



- c. Stage III: Concrete Operations (7 to 12 Years)

\_\_\_\_\_ Chose an item at either end of the series, and then looked for the next one in the series.

- d. Response to "Why?":

- B. If the subject was functioning at Stage I, the above procedures were repeated using only five items from each set of materials.

- C. If the subject was functioning at Stage III, he/she was instructed to insert an eleventh item in the series (involving the nails and the straws at the proper point: "Where does this go?")

1. Recording of Response

\_\_\_\_\_ Placed item in correct position.

\_\_\_\_\_ Placed item in incorrect position.

\_\_\_\_\_ Rearranged other items.

## II. Classification

- A. Free Sorting (Dihoff, 1976)

1. Materials: Ceramic clay pieces  
(each 1/8 inch in thickness)

- a. Three small red triangles, three small blue triangles (each 2" x 2" x 2").
- b. Three small red squares, three small blue squares (each 2"x2")
- c. Two large red triangles, three large blue triangles (each 4"x4"x4").
- d. Three large red squares, two large blue squares (each 4"x4").

2. Procedure
  - a. The ceramic pieces were randomly placed on the table in front of the subject.
  - b. The subject was instructed as follows: "Put together all of the pieces that go with each other."
3. Recording of Response
  - a. Time to complete: \_\_\_\_\_
  - b. Graphic Collection (Piaget & Inhelder, 1964)
    - \_\_\_\_ Linear: Lined pieces up in a row.
    - \_\_\_\_ Linear: Shifting criteria.
    - \_\_\_\_ Note order:
    - \_\_\_\_ Spatially Continuous:
      - Pieces were placed in a two-dimensional manner touching each other.
    - \_\_\_\_ Complex: Made a picture.
    - \_\_\_\_ Other:
  - c. Nongraphic collection:
    - Early Preoperations (2.1 to 4 Years)
    - \_\_\_\_ Made piles of identical pieces.
  - d. Partial Sort: Early Preoperations (2.1 to 4 Years)
    - \_\_\_\_ Number of pieces not sorted.
  - e. Consistent Sort: Middle to Late Preoperations (4.1 to 7 Years)
    - \_\_\_\_ Size      \_\_\_\_ Size and Shape
    - \_\_\_\_ Shape    \_\_\_\_ Size and Color
    - \_\_\_\_ Color    \_\_\_\_ Shape and Color

\_\_\_\_ All 3

- B. Dichotomies (Dihoff, 1976; Gill, 1979)
1. Materials: Same as for free sorting task.
  2. Procedure
    - a. The ceramic pieces were laid out in mixed order.
    - b. The subject was allowed to manipulate the pieces, and asked to describe color, size, and shape distinctions. If the subject did not respond, the differences among the pieces were shown to him/her.
    - c. The subject was instructed as follows: "put these ceramic pieces into two piles. Put one kind here (point) and one kind here (point)." A wooden stick was used as a divider between the two piles.
    - d. Following the responses, the subject was questioned: "Why did you put all of these pieces here (point) and all of these here (point)?"
    - e. These procedures were repeated for second and third dichotomies using the additional instruction: "Last time you sorted by \_\_\_\_\_. This time do it in a new way."
  3. Recording of Response
    - a. First Dichotomy  
\_\_\_\_ Exhaustive sort with size as

only criterion.

Exhaustive sort with shape  
as only criterion.

Exhaustive sort with color  
as only criterion.

Other:

Response to "Why?":

b. Second Dichotomy

Exhaustive sort with size  
as only criterion.

Exhaustive sort with shape  
as only criterion.

Exhaustive sort with color  
as only criterion.

Other:

Response to "Why?":

c. Third Dichotomy

Exhaustive sort with size  
as only criterion.

Exhaustive sort with shape  
as only criterion.

Exhaustive sort with color  
as only criterion.

Other:

Response to "Why?":

4. Interpretation of Response (Chapman, 1980; personal communication)
- a. No sort: 2 to 3.6 years  
(Early Preoperations)
  - b. One or two sorts: 3.6 to 5 years  
(Early to Middle Preoperations)
  - c. Three sorts: 5 years (Middle  
Preoperations)

### III. Number

- A. One-to-One Correspondence with Complimentary Sets (Gill, 1979)
1. Sets of Materials
    - a. Six pop bottles, nine cups.
    - b. Six soup bowls, nine spoons.
  2. Procedure
    - a. The six pop bottles were placed in a row, and the cups were randomly grouped in front.
    - b. The subject was instructed to: "Pick out a cup for each pop bottle."
    - c. If the subject used all nine cups, he/she was urged to pick out only one cup for each pop bottle.
    - d. These procedures were repeated for the materials listed in III.A.1.b.
  3. Recording of Response (Copeland, 1974)
    - a. Stage I: Middle Preoperations (4.1 to 5.6 Years)
      - \_\_\_ Did not match objects in one set with objects in another set.
      - \_\_\_ Used all nine cups.
      - \_\_\_ Lined all nine cups up to be the same length as pop bottles.
      - \_\_\_ Other:
    - b. Stage II: Late Preoperations (5.7 to 7 Years)
      - \_\_\_ One-to-one correspondence achieved using a trial and

error process.

c. Stage III: Concrete Operations  
(7 to 12 Years)

\_\_\_\_\_ One-to-one correspondence  
achieved without a trial and error  
process.

B. One-to-one Correspondence with  
Noncomplimentary Sets (Gill, 1979)

1. Materials

a. Eight blue poker chips, sixteen  
red poker chips.

2. Procedure

a. The eight black chips were  
placed in a row, and the  
sixteen red chips were placed  
in a group in front.

b. The subject was instructed to:  
"Take enough red chips to place  
one by each blue chip."

c. Following the response, the  
subject was asked: "Are there  
more black chips, more red  
chips, or are they both the  
same?". If the subject did not  
agree on equivalence, he/she  
was instructed to make the rows  
of chips the same.

3. Recording of Response (Copeland,  
1974)

a. Stage I.: Middle Preoperations  
(4.1 to 5.6 Years)

\_\_\_\_\_ Did not match objects in one set  
with objects in another set.

- \_\_\_ Used all sixteen red chips.
  - \_\_\_ Lined all sixteen chips up to be the same length as the blue chips.
  - \_\_\_ Other:
  - b. Stage II: Late Preoperations (5.7 to 7 Years)
    - \_\_\_ One-to-one correspondence achieved using a trial and error process.
  - c. Stage III: Concrete Operations (7 to 12 Years)
    - \_\_\_ One-to-one correspondence achieved without a trial and error process.
  - d. Response to question:
- C. Conservation of Number (Assessed if the subject was operating within Stage III on one-to-one correspondence of complimentary and noncomplimentary sets).
1. Materials
    - a. Eight red poker chips, eight blue poker chips.
  2. Procedure (Dihoff, 1976)
    - a. A row of eight evenly spaced red chips and a parallel row of eight evenly spaced blue chips were made.
    - b. Prediction: Leaving the rows the same, the investigator asked the following questions:
      - 1) If I were to push the chips in this row (pointing to row nearest subject very close together, would the

two rows still have the  
same number of chips?

Yes  No  I don't know  
 No Response

How do you know?

- 2) If I were to push the chips  
in this row (indicate same  
row) very close together,  
would one of the rows have  
more chips?

Yes  No  I don't know  
 No Response

How do you know?

- 3) If I were to push the chips  
in this row (indicate same  
row) very close together,  
would one of the rows have  
fewer chips?

Yes  No  I don't know  
 No Response

How do you know?

- c. Deformation: The chips in the  
nearest row to the subject were  
pushed together until they  
touched. The following  
questions were asked:

- 1) Do these two rows have the  
same number of chips?

Yes  No  I don't know  
 No Response

- 2) Does one of the rows have  
more chips now?

Yes  No  I don't know



No Response

3) Does one of the rows have fewer chips now?

Yes  No  I don't know

No Response

How do you know?

- d. The rows of chips were replaced to their original orders, and one chip (2nd from either end) was removed from the row nearest the subject. The following questions were asked:

1) Do these rows have the same number of chips?

Yes  No  I don't know

No Response

How do you know?

3. Interpretation of Responses

- a. If the subject responded to each question correctly, he/she was judged to be performing within concrete operations (7 to 12 years).

IV. Conservation and Transitivity

The conservation and transitivity tasks were derived from the research reported by Dihoff (1976). If the subject correctly responded to all questions in a specific task, he/she was judged to be performing within concrete operations (7 to 12 years) for that task. Specific procedures were as follows:

A. Conservation and Transitivity Warm-up

(Dihoff, 1976)

1. Materials

- a. Two unequal strings (10 cm. and 20 cm.).
- b. Two unequal ceramic clay balls (one twice as large as the other).

2. Procedure

- a. Length: Two unequal parallel strings were placed on the center of the table, approximately 8 to 10 inches from the subject. The longer of the two strings was placed nearest the subject the following questions were asked:

1) Are these two strings the same length?

Yes  No  I don't know

No Response

2) Which string is longer?

Yes  No  I don't know

No Response

3) Which string is shorter?

10 cm.  20 cm.  I don't know

No Response

- b. Weight: The subject was given a clay ball to hold in each hand. The following questions were asked:

1) Are these two balls the same weight?

Yes  No  I don't know

\_\_\_ No Response

2) Which ball weighs more?

\_\_\_ Small \_\_\_ Large \_\_\_ I don't know

\_\_\_ No Response

3) Which ball weighs less?

\_\_\_ Small \_\_\_ Large \_\_\_ I don't know

\_\_\_ No Response

B. Transitivity of Length (Dihoff, 1976)

1. Materials

- a. 27-cm. varnished stick.
- b. 28-cm. varnished stick.
- c. 28-cm. unvarnished stick.

2. Procedure

- a. The 27-cm. varnished stick and the 28-cm. varnished stick were placed arms length apart on the table, 8 to 10 inches from the subject. The midpoint of each stick was in direct relation to the other stick. The 28-cm. unvarnished stick was placed midway between the other two sticks. The investigator stated: "Here are some sticks we will be working with."
- b. The 28-cm. unvarnished stick was then evenly placed next to the 28-cm. varnished stick. The subject was asked to respond to the following question: "Are these two sticks the same length?".
- c. The 28-cm. unvarnished stick

was placed next to the 27-cm. varnished stick, with ends meeting nearest the subject. The following questions were asked:

1) Is one of the sticks longer?

Yes  No  I don't know  
 No Response

2) (If "yes", then) which one?

Unvarnished  Unvarnished  
 I don't know  No Response

d. The unvarnished stick was then removed from the table, and the subject was asked the following questions:

1) Are these two sticks the same length?

Yes  No  I don't know  
 No Response

2) Is one of the sticks longer?

Yes  No  I don't know  
 No Response

(If "Yes", then) Which one?

28-cm.  27-cm.  I don't know  
 No Response

3) Is one of the sticks shorter?

Yes  No  I don't know  
 No Response

(If "Yes", then) Which one?

27-cm.  28-cm.  I

don't know \_\_\_ No Response

C. Transitivity of Weight (Dihoff, 1976)

1. Materials

- a. One red and one gray ceramic clay ball of equal weight.
- b. One gray clay ball of a lighter weight.

2. Procedure

- a. All three clay balls were on the table 8 to 10 inches from the subject. The investigator stated: "Here are some clay balls we will be working with."
- b. The subject was given one red and one gray clay ball of equal weight to hold, and was asked if the two clay balls weighed the same.
- c. The gray clay ball was removed from the subject's hand and placed on the table 8 to 10 inches in front of the hand in which it was held. The red clay ball was removed and placed in the subject's opposite hand. The lighter gray clay ball was then placed in the subject's remaining hand. The following questions were asked:

1) Does one of the clay balls weigh more?

\_\_\_ Yes \_\_\_ No \_\_\_ I don't know

No Response

(If "yes", then) Which one?

Red  Gray  I don't  
know  No Response

- d. The gray clay ball was removed and placed on the table directly in front of the hand in which it was held. The red clay ball was then removed from the table. The following questions were asked:

1) Do these two clay ball weigh the same?

Yes  No  I don't know  
 No Response

2) Does one of the clay balls weigh more?

Yes  No  I don't know  
 No Response

(If "Yes", then) Which one?

Heavy  Light

3) Does one of the clay balls weigh less?

Yes  No  I don't know  
 No Response

(If "Yes", then) Which one?

Light  Heavy

- D. Conservation of Length-Identity Format  
(Dihoff, 1976)

1. Materials

- a. One 28-cm. string

2. Procedure

- a. The subject was instructed to

draw a circle on a piece of paper in order to determine his/her understanding of a circle.

- b. Prediction: The string was placed horizontally on the table 8 to 10 inches from the subject. The following questions were asked:

1) If I were to make this string into a circle, would the string still have the same length?

Yes  No  I don't know  
 No Response

2) If I were to make this string into a circle, would the string be longer?

Yes  No  I don't know  
 No Response

3) If I were to make this string into a circle, would the string be shorter?

Yes  No  I don't know  
 No Response

- c. Deformation: The string was then formed into a circle, and the following questions were asked:

1) Is This string the same length as before?

Yes  No  I don't know  
 No Response

2) Is this string longer than before?

Yes  No  I don't know

No Response

3) Is this string shorter than before?

Yes  No  I don't know

No Response

E. Conservation of Length--Equivalence  
Format (Dihoff, 1976)

1. Materials

- a. Two 28-cm. strings

2. Procedure:

- a. The parallel strings were placed horizontally on the table 8 to 10 inches from the subject, who was then asked if the two strings were the same length.

- b. Prediction: With the strings remaining in the same position, the investigator pointed to the string nearest the subject and asked the following questions:

1) If I were to make this string into a circle, would the two strings still have the same length?

Yes  No  I don't know

No Response

2) If I were to make this string into a circle, would one of the strings be



longer?

Yes  No I don't know

No Response

3) If I were to make this string into a circle, would one of the strings be shorter?

Yes  No I don't know

No Response

c. Deformation: The string nearest the subject was then formed into a circle. The following questions were asked:

1) Are these two string the same length as before?

Yes  No I don't know

No Response

2) Is one of the strings longer than before?

Yes  No I don't know

No Response

3) Is one of the strings shorter than before?

Yes  No I don't know

No Response

F. Conservation of Weight-Identity Format (Dihoff, 1976)

1. Materials

a. One ceramic clay ball.

2. Procedure

a. Prediction: The clay ball was placed on the table 8 to 10 inches from the subject. The

following questions were asked:

- 1) If I were to roll this clay ball into a hot dog, would the piece of clay still have the same weight?

Yes  No I don't know

No Response

- 2) If I were to roll this clay ball into a hot dog, would the piece of clay weigh more?

Yes  No I don't know

No Response

- 3) If I were to roll this clay ball into a hot dog, would the piece of clay weigh less?

Yes  No I don't know

No Response

- b. Deformation: The clay ball was then rolled into a hot dog, and the following questions were asked:

- 1) Does this piece of clay weigh the same as before?

Yes  No I don't know

No Response

- 2) Does this piece of clay weigh more than before?

Yes  No I don't know

No Response

- 3) Does this piece of clay weigh less than before?

Yes  No  I don't know

No Response

G. Conservation of Weight-Equivalence Format  
(Dihoff, 1976)

1. Materials

- a. Two ceramic clay balls of equal weight.

2. Procedure

- a. The subject was given a clay ball to hold in each hand, and asked if the two balls were the same weight.

- b. Prediction: The balls were removed and placed side-by-side on the table approximately 8 to 10 inches from the subject. Pointing to one of the clay balls, the following questions were asked:

- 1) If I were to flatten this clay ball in to a pancake, would the two pieces of clay still have the same weight:

Yes  No  I don't know

No Response

- 2) If I were to flatten this clay ball into a pancake, would one of the pieces of clay weigh more?

Yes  No  I don't know

No Response

- 3) If I were to flatten this

clay ball into a pancake,  
would one of the pieces of  
clay weigh less?

Yes  No  I don't know  
 No Response

- c. Deformation: The one clay ball was then flattened into a pancake, and the following questions were asked:

1) Do these two pieces of clay weigh the same as before?

Yes  No  I don't know  
 No Response

2) Does one of the pieces of clay weigh more than before?

Yes  No  I don't know  
 No Response

3) Does one of the pieces of clay weigh less than before?

Yes  No  I don't know  
 No Response

## V. Drawing (Gill, 1979)

### A. Materials

1. A pencil and several sheets of plain paper.

### B. Procedure

1. The subject was shown a model or picture of the shape to be drawn, and was asked to copy it: "Make one just like this one."
2. A different sheet of paper was used

for drawing each model.

3. Each model was relatively large (approximately 3 inches by 3 inches), and was drawn on a card.
4. Models were presented in developmental order of acquisition.

C. Recording of Response

1. The following models, with corresponding stages of mastery/acquisition (compiled by Gill, 1979), were used:
  - a. Sensorimotor (0 to 2 years)
    1. Vertical Line
  - b. Early Preoperations (2.1 to 4 Years)
    1. Horizontal Line
    2. Circle
    3. Vertical Horizontal Cross
  - c. Middle Preoperations (4.1 to 5.6 Years)
    1. Right Oblique Line
    2. Square
    3. Left Oblique Line
    4. Oblique Cross
  - d. Late Preoperations (5.7 to 7 Years)
    1. Triangle
    2. Diamond
    3. Circumscribed Figures
    4. Shapes with Diagonals
  - e. Late Preoperations (6.6 to 7 or 8 Years)
    1. Complex Circumscribed Figure

## APPENDIX B

### DEFINITIONS AND CODING PROCEDURES FOR TURN-TAKING AND TOPIC

- I. General Definitions: The following general definitions were used in the data analysis:
  - A. Turn: An utterance bounded by either a significant pause or an utterance of another (Ochs, 1979).
  - B. Interruption: Simultaneous talking by the person who did not have the speaking turn and the speaker (Duncan & Fiske, 1977). Interruptions were indicated by bracketing together the interrupted utterance and the interrupter stimulus statement.
  - C. Topic: A proposition (or set of propositions) about which the speaker is either providing or requesting information (Keenan & Schieffelin, 1976).
  
- II. Turntaking
  - A. Coding procedures: The subject's interrupted utterance as well as the turn immediately following the investigator's interrupter

stimulus statement were coded according to the type of device used for repairing turntaking violations. These repair devices (Sacks, Schegloff, & Jefferson, 1974) included the following:

1. Stopped Talking: Those turns in which the subject stopped talking to allow the investigator to continue the interrupter stimulus statement. In this manner, the subject repaired the violation by satisfying the rule of "one party talks at a time". This repair device could occur alone or also in combination with another repair device.
2. Re-introduction of Interrupted Utterance: Those turns in which the subject immediately re-introduced the interrupted utterance either through repetition and/or completion thereby re-introducing the topic of the interrupted utterance.  
For example:  
Speaker 1: My family is  
Speaker 2: [Television is fun to watch.

Speaker 1: My family is coming for the  
program.

or

Speaker 1: My family is

Speaker 2: [Television is fun to watch.

Speaker 1: Coming for the program.

3. Re-introduction of Topic of Interrupted Utterance: Those turns in which the subject immediately re-introduced the topic of the interrupted utterance in a new way (e.g., use of a totally different utterance). For example:
- Speaker 1: My dog died because
- Speaker 2: [This popcorn smells good.
- Speaker 1: Some kids gave my dog some poison and he died.
4. No Repair by Continued Talking: Those turns in which the subject continued talking simultaneously with the investigator's interrupter stimulus statement thereby resulting in no repair of the turntaking violation.



III. TOPIC

A. Coding Procedure: The subject's turn immediately following the investigator's stimulus statement was coded using topic analysis procedures derived from the research reported by Bedrosian (1981) and Retherford (1980). The specific coding definitions were as follows:

1. CONTINUOUS DISCOURSE: Discourse linked in some manner to the topic that was previously introduced (Keenan and Schieffelin, 1976). The manner in which discourse could be linked was as follows:

a. Exact Imitation: Those turns that repeated the stimulus statement with no syntactic or semantic changes. For example:

Speaker 1: Popcorn is white.

Speaker 2: Popcorn is white.

b. Exact Imitation with Expansion: Those turns that repeated the stimulus statement and added additional

information to it. For example:

Speaker 1: Popcorn is white.

Speaker 2: Popcorn is white and  
fluffy.

- c. Partial Imitation: Those turns that partially repeated the stimulus statement by omission (Bedrosian, 1981).

For example:

Speaker 1: Salt tastes good on  
popcorn.

Speaker 2: On popcorn.

- d. Partial Imitation with Expansion: Those turns that partially repeated the stimulus statement and added other semantic information. For example:

Speaker 1: This popcorn smells good.

Speaker 2: Smells good and tastes  
good.

- e. Topic Incorporating: Those turns that integrated a claim and/or presupposition of the stimulus statement (Keenan and Schieffelin, 1976). For example:

Speaker 1: A spoon is good for  
stirring.

Speaker 2: It is also good for mixing.

- f. Alternative: Those turns that involved opposing information of the stimulus statement and/or negating the stimulus statement (Bloom, Rocissano, and Hood, 1976). For example:

Speaker 1: Popcorn is white.

Speaker 2: Yellow.

- g. Acknowledgement/Agreement: Those turns that served to acknowledge the fact that the previous speaker had spoken by using remarks such as "oh," "hmm," "o.k.," and "uh-huh" and/or that involved affirmation of the stimulus statement.

For example:

Speaker 1: I can hear the popcorn  
popping.

Speaker 2: Uh-huh.

or

Speaker 1: This popcorn smells good.

Speaker 2: Yes.

- h. Incomplete Response: Those turns that maintained the topic but involved an incomplete response to the stimulus statement due to the fact that the speaker did not finish his utterance (Bedrosian, 1981). For example:

Speaker 1: Leaves fall off of trees.

Speaker 2: Trees are uh

- i. Combination: Two or more of the types of Continuous Discourse specified above.

2. SHADING: Those turns that provided a change of focus rather than a discrete transition from one topic to another (Schegloff & Sacks, 1973). The new information in the focus change was related to subject matters in the here and now, in the past, or in the future.

- a. Example of Here-and-Now Shading:

Speaker 1: Butter is yellow and cold.

Speaker 2: Popcorn tastes good with  
butter on it.

- b. Example of Memory Shading:

Speaker 1: That's a hot popper.

Speaker 2: I got burned last week on  
the stove.

c. Example of Future Shading:

Speaker 1: Birthday cakes have  
candles.

Speaker 2: I will be going home for my  
next birthday.

3. DISCONTINUOUS DISCOURSE: Discourse in which the topic of an utterance was not linked in any manner to the topic of the immediately preceding stimulus statement (Keenan and Schieffelin, 1976). The ways in which discontinuous discourse could occur were as follows:

- a. Re-introduction of a Topic: Those turns that continued or re-introduced a topic that appeared in the discourse at some point prior to the immediately preceding stimulus statement (Keenan and Schieffelin, 1976). For example:
- Speaker 1: This popcorn smells good.

Speaker 2: I have a dog at home.

Speaker 1: I have a dog too.

Speaker 2: Popcorn really is good.

- b. New Topic Initiation: Those turns that were in no way related to the topic of the immediately preceding stimulus statement or to a topic initiated previously in the discourse (Keenan and Schieffelin, 1976). For example:

Speaker 1: That's a hot popper.

Speaker 2: I have a new dress on.

- c. Consecutive Topic Initiations: Those turns that had 2 or more topic initiations with no pauses between topics. For example:

Speaker 1: Butter is yellow and cold.

Speaker 2: I have 2 brothers and 3 sisters. My friend Linda says I am the best swimmer she's seen.

4. REPAIR OF REFERENT: A repair system was a set of linguistic devices used to help the listener identify his lack of understanding to the speaker and to identify its source (Garvey, 1975). These devices included:
- a. Request for Repetition: A non-specific request for repetition of all or part of the stimulus statement (e.g., "Huh?") (Garvey, 1977). Another example:  
Speaker 1: That popper is hot.  
Speaker 2: What?
  - b. Request for Clarification: A request for additional information or elaboration of the stimulus statement. For example:  
Speaker 1: I have a cat named Muffy.  
Speaker 2: Is it a brown cat?
  - c. Request for Confirmation: A turn that requested the first speaker confirm or deny the second speaker's repetition or reformulation of the first speaker's initial utterance (Cherry, 1975). For

example:

Speaker 1: Birthday cakes have  
candles.

Speaker 2: Birthday cakes have candles  
on them?

- d. Query of Referent of Stimulus Statement (Retherford, 1980): A turn in which the speaker signaled doubt in identifying the referent of the previous stimulus statement (e.g., "A what?"). Another example:

Speaker 1: I have a cat named Muffy.

Speaker 2: What do you have?

- e. Statement/Question regarding Absence of Referents (Retherford, 1980): A turn in which the speaker addressed the lack of presence of the referent initiated in the stimulus statement. For example:

Speaker 1: Leaves fall off of trees.

Speaker 2: I don't see any trees.

or

What trees?



- f. Statement/Question Regarding Appropriateness of Topic (Retherford, 1980): A turn in which the speaker addressed the appropriateness of the topic shift initiated by the previous speaker. For example:

Speaker 1: Leaves fall off of trees.

Speaker 2: Leaves don't have anything to do with making popcorn.

or

Speaker 1: Birthday cakes have candles.

Speaker 2: Why did you start talking about birthday cakes?

- g. Statement Expressing Lack of Understanding (Retherford, 1980): A turn in which the speaker signaled that he did not understand the previous utterance. For example:

Speaker 1: Birthday cakes have candles.

Speaker 2: I don't understand that.

5. NONVERBAL RESPONSES: Those turns that involved a nonverbal response directed to the investigator or the on-going activity. These responses were as follows (Retherford, 1980):
- a. Attention directed to the investigator but:
    1. Subject nodded head affirmatively.
    2. Subject registered look of confusion.
    3. Subject searched for referent.
  - b. Attention directed to the on-going activity.
6. COMBINATION TURNS: A turn that consisted of two or more different types of discourse. The combinations were as follows:
- a. Continuous Discourse + Shading
  - b. Continuous Discourse + Discontinuous Discourse

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by

DEBORAH ANN WARNE

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## Abstract

### TURNTAKING REPAIR AND TOPIC MAINTENANCE ABILITIES IN MENTALLY RETARDED ADULTS

This study examined turntaking repair strategies and topic maintenance abilities of four institutionalized mentally retarded adults. The subjects, two males and two females, ranging in age from 27 to 37 years, were functioning in Piaget's preoperational period of cognitive development with comparative levels of language comprehension and production. Topic maintenance abilities were examined under the same three conditions specified by Retherford (1980). In each condition, the referent was either present or absent, related or unrelated, in order to determine the effect on the ability of the subjects to maintain the discourse topic. Five stimulus statements were constructed for each of the three conditions. Two of the five statements for each condition were planned interruptions in order to examine the subjects' reactions to violations of turntaking rules. Each subject participated in a popcorn popping activity with the investigator. The stimulus statements were presented by the investigator in a predetermined order during conversational speech throughout the activity. For each subject, interrupted

speaking turns, as well as those following the interrupter stimulus statements, were transcribed and coded according to the type of device used for repairing turntaking violations (Sacks, Schegloff & Jefferson, 1974). In addition, verbal and nonverbal turns following stimulus statements were transcribed and coded for the type of topic relationship involved (Bedrosian, 1981; Retherford, 1980). Results indicated that each subject exhibited at least one type of repair strategy for dealing with turntaking violations, with the primary repair device involving discontinuation of talking upon interruption. With regard to topic, results indicated that across conditions, the primary topic turn type exhibited by the majority of subjects was continuous discourse, involving the use of acknowledgements. In terms of repair of referent, results indicated that three of the four subjects exhibited repair, with the primary device involving requests for confirmation. Repair of referent was used more frequently when the referent was absent and unrelated than when the referent was absent and related. Clinical implications regarding language assessment and intervention are discussed.