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Presuppositional strategies of concrete-operational-stage children

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PRESUPPOSITIONAL STRATEGIES OF

CONCRETE-OPERATIONAL-STAGE CHILDREN

By

Christine A. Dollaghan

B.A., Wesleyan University, 1974

Presented in partial fulfillment of

the requirements for the degree of

Master of Arts
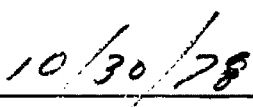
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Presuppositional Strategies of Concrete-Operational-Stage Children
(89 pp.)

Director: Dr. Lynda Miller

The purpose of the study was to explore the abilities of con-
crete-operational-stage males to control the presuppositions of
their linguistic output to listeners of different ages.   Twelve
seven-year-old males, having scored at or above the mean for
their age level on tests of vocabulary, elicited language pro-
duction, and conservation skill, learned to play a game involving
the ability to conserve.   On the following day, each subject
was instructed to explain the game twice, once to a four-year-old
male, and once to a twenty-two-year-old male.   The explanations
were videotaped, transcribed, and analyzed for evidence regarding
the linguistic and nonlinguistic methods used by subjects to dif-
ferentially manipulate the presuppositional structures of their
utterances according to the age of the listener.

Significant differences were found in six of twelve categories
quantifying presuppositional variation.   Number of utterances,
number of words, mean length of utterance, number of manual ges-
tures, number of nonlinguistic strategies, and number of ref-
erences to the imaginary nature of the game were found to be
significantly different in explanations to the two listeners.
Number of stressed words, number of quantifiers, number of lis-
tener comprehension probes, and number of cleft-sentence con-
structions did not differ significantly as a function of age
of listener.   Neither passive nor affirmative verb constructions
occurred in any transcript.

It was concluded that concrete-operational-stage males are
capable of controlling at least some of the typical presupposi-
tional structures so as to meet listener needs.   Qualitative
examination of the explanations revealed patterns of individual
variation suggesting that further research in this area could
add necessary information to a general conception of the process
of human communication.

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CHAPTER I

INTRODUCTION

Statement of the Problem

Current research reveals a growing constellation of factors which appear to contribute to each communicative interaction between human beings. The interrelationship among linguistic, cognitive, and social variables is only gradually being elucidated as investigators begin to grapple with the unobservable aspects of human language use, including situational, speaker-hearer and message variables. It has been pointed out that: "Every sentence needs to be interpreted in the light of various extralinguistic data." (Carswell and Rommetveit, 1971, p. 50)

Pragmatics, one of the newer branches of communication study, has evolved precisely out of a widely-felt dissatisfaction with the generative grammar model, which dealt with idealized speaker-hearers and the theoretical bases of language to the exclusion of many of the factors which govern actual language use. It seems likely that a comprehensive theory of language must integrate both formalized structural characteristics such as syntax and semantics with extralinguistic variables, but the literature

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documents the difficulties inherent in the early stages of this endeavor.

The present study is in large part concerned with just such an initial attempt to explore the interface between linguistic and extralinguistic factors. The ability of concrete-operational-stage children to manipulate presuppositions, a type of pragmatic structure, will be investigated. Normal concrete-operational children will be given the task of explaining how to play a game requiring conservation ability to a four-year-old and to an adult. Videotaped samples of these interactions will be analyzed for evidence as to the children's abilities to vary the presuppositional structures used according to the different needs of their listeners.

Presuppositions are a category of pragmatic structures which have to do with the topic-comment relationship chosen by a speaker in constructing a particular utterance. Presuppositions have been variously defined, and for the purposes of this study Bates' (1976) framework will be used. Bates (1976) distinguishes three general types of presuppositions: 1) Semantic presuppositions, which refer to the information implicit in a sentence which is not affected by the negation of that sentence, 2) Pragmatic presuppositions, which have to do with the relationship between the sentence and the context in which it is used,

and 3) Psychological presuppositions, which refer to the act of using a sentence to make a comment about some information assumed to be shared or verifiable by the speaker and listener. It is with the third type that the present study is concerned.

Presuppositions

Bates (1976) describes mastery of "presupposing" as the ability to accurately gauge the degree of mutuality of a given context and to determine what aspects of a particular message must be explicitly encoded (i.e., not presupposed) for a successful and efficient communicative interaction to occur. This ability involves both a lack of egocentricity (in the Piagetian sense) and the mastery of various linguistic structures, both subtle and obvious, by which information is either presupposed (i.e., topicalized) or brought to the forefront of a listener's attention (i.e., foregrounded).

Much of the available research into the acquisition of pragmatic structures has dealt with infants and pre-school children, although J. Austin's seminal work on the subject, How to Do Things with Words (1962), described the pragmatics of adult language. Bates (1976) described work by Antinucci and Parisi (1972) on the acquisition of performatives (a basic pragmatic structure in which the use of a sequence of words accomplishes the action expressed), and

has herself investigated the development of other pragmatic structures.

Bates (1976) has also outlined a cogent theoretical framework on the development and refinement of the ability to foreground information necessary to ensure adequate apprehension of the meaning of a message by a listener. She describes research which suggests that one-word utterances of very young children follow a simple, obligatory rule in which only the single "newest," most interesting, informative, or salient aspect of a context is chosen for encoding, and thus becomes the "comment." All other background information, the "topic," is presupposed in a rudimentary sense by virtue of its exclusion from the actual utterance. Bates suggests that increasing presuppositional competence is most importantly a matter of developing the capacity to make one's presuppositions explicit when necessary, an ability dependent on both the speaker's awareness of the listener's attributes such as experience, cognitive level, etc., and the speaker's skill at utilizing linguistic methods of manipulating his presuppositions to meet the perceived listener needs.

The notion of the relationship between topic and comment is dealt with at some length by Wallace Chafe in Meaning and the Structure of Language (1970). Chafe states that in the most usual (i.e., least-marked) instances: "A

surface structure subject carries the old information of a sentence," (p. 212) and "The verb, and only the verb, contains new information." (p. 215) The passive, a marked construction, completely reverses the usual rules for what information is new in an utterance, however, in that the agent of such a sentence normally conveys the new information while the patient contains the old information. In other words, in the sentence "John hit the ball," the predicate "hit the ball" assumes the role of the proposition or comment, while the surface structure subject, "John," is relegated to the position of the topic or presupposed information. In this sentence structure, "John" is interpreted as the old information, while "hit the ball" is the new or most interesting information of the utterance. The situation changes drastically when the passive construction is used, however. In "The ball was hit by John," it is John who is the focal point of the utterance and thus assumes the role of the comment or proposition to the topicalized or presupposed information of the rest of the sentence.

Chafe (1970) also points out that higher pitch and contrastive stress on a word can designate it as new information, as in "The ball was hit by John." He states that quantifiers such as "all," "some," etc., and the affirmative inflectional form of verbs (e.g.,"He does want to go")

are structures which always signal the new information
(i.e., comment, focus, or proposition) of a sentence.

Bates' (1976) discussion of the ways in which
speakers appear to construct and signal topic-comment, old-
new, presupposition-proposition priorities in their utter-
ances includes several forms in addition to those described
by Chafe. She points out that definite articles and pro-
nouns, as well as elliptical expressions, are means by
which information is relegated to the assumed shared con-
text and thus presupposed by a speaker in producing an ut-
terance.

Evidence regarding the development of competence in
the use of definite and indefinite articles ("The boy saw
the book" vs. "A boy saw a book") in three and four-year-
old children was gathered by Michael Maratsos (1976). He
points out that the preschool child must acquire both a
means for accurately gauging a listener's knowledge of a
particular referent, and a grasp of the complex notions of
class membership which underlie the linguistic units (i.e.,
definite and indefinite articles) specifying direct and in-
direct reference. This dichotomy between direct and in-
direct reference can be seen to correspond closely to the
comment-topic or proposition-presupposition distinction.
Maratsos' study was structured with questions which speci-
fically elicited indefinite or definite reference responses,
both receptively and expressively. Results indicated that

the three-year-old children showed less definite reference in general than the four-year-olds, which the author attributes to a "...slightly weaker referential and representational competence." (p. 73) In other words, three-year-old children used indefinite references inappropriately on more occasions than the four-year-olds, revealing difficulty in construction of: "...a mental representation that includes both a specification for class membership and the contextual specifications that make the referent unique among members of its class." (p. 67)

Maratsos' findings corroborate Bates' observation that definite articles are used to topicalize, or presuppose, information in an utterance. The sentence, "The boy ate dinner," for example, presupposes that reference to a specific boy has already been established between the listener and the speaker, through previous utterances or the direct and unambiguous presence of the boy in the context. "A boy ate dinner," on the other hand, explicitly marks or focuses on the subject of the sentence and does not assume a prior awareness of the boy in question by the listener. It is not surprising that three-year-olds have more difficulty in the acquisition of indefinite articles if Bates is correct in her assertion that the development of presuppositional skill is most importantly a matter of learning when it is necessary to forego presupposition in favor of

more explicit encoding.

An article by M. Holzman (1971) provides a close examination of the structure and uses of ellipsis, another method of presupposition or topicalization in English. She points out that elliptical utterances rely on different types of contexts for their interpretation. She uses the term "telegraphic ellipsis" to describe ellipsis in which the linguistic elements are supplemented by nonverbal signals such as gestures or intonational patterns which emphasize a feature of the immediate context without direct reference to it in words. Telegraphic ellipsis is contrasted with elliptical sentences which rely on linguistic contexts for their interpretation, in which words omitted can be inferred from knowledge of the previous utterances in a given interchange. In addition, Holzman includes the shared cognitive, social and cultural history of the communicators as yet another aspect of context which can contribute to the understanding of elliptical utterances. Analysis of the utterances of preschool children reveals significant inappropriate ellipsis which appears to be one of the distinguishing characteristics of egocentric speech as described by Piaget (1962). As children become less egocentric and acquire increasing verbal facility it appears that they learn to balance efficiency of verbal output with an accurate perception of listener needs.

Egocentricity and Communication

While there is a significant number of studies demonstrating the egocentric nature of the preschool child, only a few examine in any detail the reasons for his inability to communicate necessary information to his listener. Even fewer have analyzed the structural characteristics of such unsuccessful linguistic interactions. A group of investigators headed by J. Flavell (1968) has performed several preliminary studies investigating the development of role-taking and communicative skills in children through such tasks as assuming the visual perspective of others in describing visual arrays; however, they have focused primarily on the developmental sequence involved in role-taking acquisition rather than on the specific strategies involved. Flavell (1968) found that: "After age 7-8, the child gradually rids himself of the egocentric illusion, and begins to use role-taking techniques to make his communications adaptive." (p. 18) The series of studies by Flavell examined changes in the ability of children of different ages to meet the informational needs of listeners, with the general conclusion that role-taking skill is a progressive, developmental phenomenon which is correlated with age in normal children.

A similar conclusion was reached by Selman (1971), in a task involving perceptual and conceptual role-taking

among children aged four, five and six. Selman described four levels in the progression of social thinking among these children, and characterized the most advanced level, reached predominantly by the six-year-olds, as an awareness by the child that the listener has perspectives based on his own reasoning and that this reasoning may be different from that of the speaker.

On a task involving the description of novel visual forms hidden from listeners, Krauss and Glucksberg (1968) found that males in kindergarten and grades one, three and five produced communications of similar effectiveness in their initial attempts, but that older children were much more successful in modifying their initial messages to make them more comprehensible on subsequent trials.

Shatz and Gelman (1973) conducted a series of studies in which they analyzed the language of sixteen upper-middle-class four-year-olds addressed to: 1) two-year-olds, 2) peers, and 3) adults. They found that the four-year-olds used significantly shorter Mean Lengths of Utterance with the two-year-olds than with adults or peers, and they also tended to use fewer coordinate constructions and subordinate conjunctions with the younger listeners. Output to the two-year-olds contained more attention-getting words and concrete verbs as well. Shatz and Gelman also controlled whether the four-year-olds had younger siblings and

would have thus been exposed to the more specialized language directed to two-year-olds by their parents; the findings revealed no significant differences between children with and without younger siblings.

Sachs and Devin (1976) conducted an investigation into the ability of four preoperational-stage children to use age-appropriate speech styles in communicating with babies, dolls, peers, and mothers, and found results similar to Shatz and Gelman's (1973). Their findings indicated that these children, aged 3;9 to 5;5, showed some ability to use different speech styles with different listeners.

These data seem to show a developmental progression in the child's ability to perceive and use a listener's perspective in constructing an utterance, and several investigators single out the age period around seven or eight years as one during which the child shows a marked decrease in egocentric speech in addition to other cognitive changes (Piaget, 1962, 1968, Flavell, 1968, Furth, 1969). This is the age period when the child first shows true concrete-oeprational thought processes.

The Period of Concrete Operations

Piaget (1962) first described the period of concrete operations which follows the preoperational stage of intellectual activity in sequence. He pointed out that the gradual process of assimilation and accommodation which

results in equilibrium of the child's thought for each stage in his development is not an all-or-none phenomenon, but is based on numerous cognitive abilities which do not necessarily appear simultaneously. A given child does not suddenly acquire all of the skills characteristic of a particular intellectual mode; instead, there are numerous differences among skills and various confusions and misapprehensions which are gradually resolved in an ongoing, heterogeneous process.

Piaget characterized the system of thought of the concrete-operational stage, beginning at approximately age seven, as fulfilling two primary conditions: "A) A system of operations transposing exterior actions into mobile, reversible mental actions, and B) An inter-individual coordination of these operations ensuring both general reciprocity of points of view and correspondence between the detail of the operations and their results." (Piaget, 1962, p. 238)

One of the mental abilities embodying these conditions is that of conservation, and Piaget (1962) noted that conservation is one of several attributes of the thought of a child who has reached the stage of concrete operations. Conservation is defined as the ability to perceive and maintain the equality of a given amount or substance through a succession of perceptual transformations. Piaget

(1962, 1968) noted that prior to age seven, approximately, children presented with two equal balls of clay will assert that one has more clay when one of the balls is transformed into a "sausage" or "pancake" shape. Piaget and others (Elkind, 1961, Goldschmid, 1967, Winer, 1975) have found that this characteristic of the young child's thought applies to a number of substances, and that there is a transitional stage in the child's progression toward the status of a conserver during which he may intuitively perceive that the perceptually different entities do have the same amount but be unable to give a logical explanation for his perception.

Conservation has been shown by Almy (1966) to be most closely correlated with chronological age. Almy (1966) studied the conservation abilities of 150 children from a school with a lower socioeconomic population, and 157 children from a school with a middle-class population. She found that socioeconomic status appears to affect the rate at which children develop conservation ability, with the middle-class children showing conservation skill slightly earlier than the lower SES children. She also found that a stencil design test was a better predictor of conservation skill than a vocabulary test, especially for the lowere SES children. Her data showed no effect of sex on the performance of conservation tasks. (Almy, 1966,

p. 82)

Goldschmid (1967) studied the relationship of conservation to age, sex, mental age and vocabulary in 102 first- and second-grade children. He found moderate, highly significant correlations between conservation scores for ten concepts and mental age, intelligence quotient, and vocabulary. He also noted a trend for boys in the sample to perform at a higher level than girls on every conservation task, but the difference was not statistically significant. High positive correlations were found between the child's ability to judge conservation and to explain his judgment logically. Again, Goldschmid found chronological age to be the variable most closely related to conservation ability in normal children.

There are certain methodological problems in the assessment of a child's intellectual processes. Piaget's "Methode Clinique" (DeVries and Kohlberg, 1969) allowed the child to structure his own responses with a minimum of overt demands by the examiner, and lengthy verbal interchanges ensued as the examiner probed for the child's understanding of his manipulations. This technique has numerous disadvantages in addition to its advantages. It relies heavily on the subjective interpretation of the examiner, is time-consuming, and does not yield data which are easily quantified. Considerable controversy has ensued

among investigators attempting to replicate or extend Piaget's findings as to the consistency and validity of the various procedures used (Sawada and Nelson, 1970, Smedslund, 19C3, Braine, 1964).

One attempt to standardize Piagetian procedures is the Concept Assessment Kit-Conservation, a test instrument developed by M. Goldschmid and P. Bentler (1968). The test assesses conservation ability for six different concepts, including substance, continuous and discontinuous quantity, number, weight and two-dimensional space. The test procedures require the subject to judge invariance of a substance through one perceptual transformation by answering a question ("Now do they have the same amount, or does one have more?"), and also to explain his judgment. The subject receives one point for a correct judgment and another for giving an adequate rationale for his judgment according to the criteria specified in the test. Critics of the test (Smock, 1970, DeVries and Kohlberg, 1969) decry the attempt to standardize and quantify Piaget's informationally rich method of probing the child's reasoning but agree that the test appears to demonstrate adequate reliability and validity for each of the concepts assessed. The test authors cite data suggesting a positive correlation between conservation ability and other skills associated with the concrete-operational phase of cognitive development; however,

they emphasize that determination of a child's level of cognitive functioning should ideally be based on assessment of a number of skills rather than on one measure only (Goldschmid and Bentler, 1968).

Plan of the Study

The period of concrete operations, occurring at approximately age seven in normal children, is characterized among other things by the appearance of: 1) Conservation ability, and 2) Improved role-taking skill in communication. The ability to manipulate presupposition and proposition functions to meet listener needs in producing utterances would appear to be one of the skills which facilitates the latter competence. This study attempted to compare the presuppositional and propositional strategies used by concrete-operational-stage males to explain a conservation task to a four-year-old listener and to an adult listener. It was hypothesized that subjects would use differing presuppositional strategies according to the age of the listener. The research attempted in this study was exploratory and largely descriptive in nature. Presuppositions were inferred from the linguistic, gestural and intonational productions of the subjects. Differences in the presuppositional structures described by Chafe (1970) and Bates (1976) were identified whenever possible; however, the unstructured situation in which subjects were allowed to

produce their own unique utterances with minimal restrictions by the examiner resulted in a variety of unpredicted structures and strategies. The interest of the present investigator in the unpredicted and idiosyncratic strategies used by subjects was at least as strong as that in the previously-discussed methods for presupposing or focusing, and the investigator examined the data collected for trends and patterns not included in the presuppositional structures described by Chafe (1970), which are primarily hypothesized on the basis of evidence from adult language samples.

Rationale

Twelve boys between the ages of 7;0 and 7;11 were selected for participation in the study upon obtaining scores at or above the mean for their age group on the following measures: 1) Peabody Picture Vocabulary Test, 2) Carrow Elicited Language Inventory, and 3) Concept Assessment Kit-Conservation. Each subject participated in performing a simple game involving the ability to conserve liquid quantity, which he was subsequently asked to explain to two male listeners, ages four and twenty-two. The explanations were videotaped and later analyzed with regard to thirteen categories hypothesized to reflect presuppositional or focusing strategies. It was hoped that these categories would show differences in the explanations

to the four-year-old and to the adult listener. It was hoped that the study would provide some very basic information regarding the kind and complexity of presuppositional and focusing strategies used by concrete-operational-stage males of at least average ability in vocabulary, language and cognitive skills as measured by the three tests listed above.

CHAPTER II

MATERIALS AND PROCEDURES

Subjects

Twelve subjects met the criteria described below and participated in the study. Subjects, all of whom were from the Missoula area, were obtained through a variety of sources, including newspaper advertisements and referrals from acquaintances.

All subjects were Caucasian males, aged 7;0 through 7;11, who were selected for inclusion in the study on the basis of having met all three of the following criteria:

1. Score at or above the mean for their age level on Form A of the Peabody Picture Vocabulary Test.

2. Score at or above the mean for the age group 7;0 to 7;6 on Form A of the Concept Assessment Kit-Conservation.

3. Score at or above the mean for the age group 7;0 to 7;11 on the Carrow Elicited Language Inventory.

The variable of socioeconomic status was not investigated in this study, but it is possible to state that the subjects respresented a range of socioeconomic levels from upper-middle to lower-middle class as judged by the investigator, who visited most of their homes.

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The listeners in the study, a four-year-old male and a twenty-two-year-old male, were the same for all subjects.

Procedures

The testing was conducted on two successive days for each subject, and all procedures took place at the University of Montana Speech, Hearing and Language Clinic. On the first day, each subject was brought to the clinic and given the following sequence of tests: 1) Carrow Elicited Language Inventory, 2) Peabody Picture Vocabulary Test, and 3) Concept Assessment Kit-Conservation. Each subject was then given a short break, away from the test room, while the examiner (who was the same for all subjects) re-oriented the table and chairs and arranged the experimental array. This array consisted of two identical puppets, two identical medium-sized glasses filled with equal amounts of water, an empty tall, narrow glass in front of the puppet facing the subject, and an empty short, wide glass in front of the examiner's puppet. (See Fig. 1, p. 21.)

Each subject was brought back into the room and seated in the chair as noted above. The examiner then determined that the subject perceived equal amounts of water in the two identical glasses, adding or removing water as necessary to obtain this assertion from the subject.

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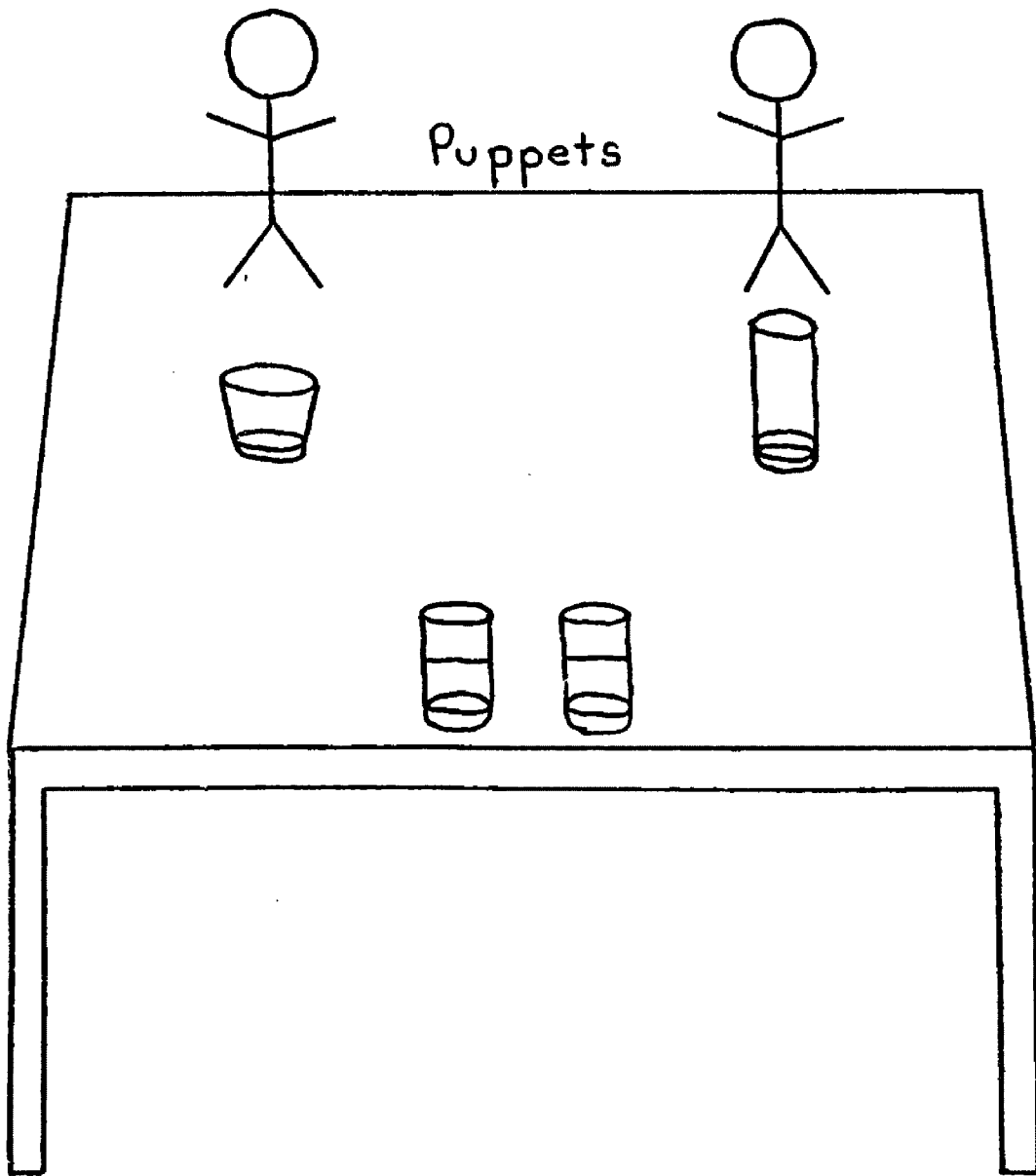
Fig. 1. Experimental Array

The examiner then said:

> We're going to play a game now, and if you play it
> right you'll win a prize. I want you to listen and
> watch very carefully, because I want you to remember
> how to play this game tomorrow. Okay? Here's how we
> play it. This is my puppet and that's your puppet
> (gesturing to appropriate puppets). My puppet is
> thirsty. I'm going to give him a drink of water
> (pouring all of the water from the nearest identical
> glass into the short wide glass). Your puppet is
> thirsty too. I want you to give your puppet just as
> much to drink as my puppet has.

All subjects responded correctly by pouring all of
the water from the other identical glass into the tall,
narrow glass and disregarding the misleading perceptual
cues which resulted (i.e., the different levels of liquid
in the two glasses). Each subject was then allowed to
choose between $.50 and a coupon worth $.50 from a restau-
rant as his reward for "playing the game right." This con-
cluded the procedures of the first day for each subject.

The remainder of the experimental procedures oc-
curred on the following day. This time interval was in-
cluded in order to ensure that the subjects would not mere-
ly be imitating the language used by the examiner to ex-
plain the game to them. On the second day, each subject was
brought back into the same room, with the same array as on
the previous day. The only difference was the subject now
sat in the chair facing the puppet with the short, wide
glass (i.e., the chair which had been occupied by the ex-
aminer on the previous day). The examiner then said:

Okay, do you remember that game we played with these puppets yesterday? I have two friends here today who don't know how to play that game, and I want you to tell them how to play it right so they can win a prize just like you did. If you tell them how to play it so that they can play it right, you'll win another prize too. The only rule is, you can't touch any of these things (gesturing toward the array). So you don't really pour the water, you just <u>tell</u> them how to play. Do you understand? Okay, I'll go get my first friend.

Subjects were randomly assigned to either Condition 1, in which case their explanations were made to the adult listener first, or to Condition 2, in which case they explained the game to the four-year-old listener first.

At this point, the first listener was brought into the room and seated next to the subject. The examiner introduced them and said, "Okay, (listener's name), (subject's name) is going to tell you how to play a game with these puppets so you can win a prize." The examiner then left the room, instructing the subject to come out into the hall after finishing his explanation.

Both listeners had previously been instructed to sit quietly, listening to the subject without making any verbal or gestural responses, and the four-year-old was generally reminded to "just listen" as the examiner left the room prior to the subject's explanation.

Upon completion of the first explanation, the subject was introduced to the second listener in the same manner as the first. Each subject was then rewarded as on the

previous day and thanked for his help.

Each explanation was videotaped without the sub-
jects' knowledge, and the tapes were later transcribed and
analyzed by the examiner in several different ways. First,
a detailed transcription of the verbal output of the par-
ticipants was made and verified. Second, the gestures of
the subjects were counted according to the rules for Cate-
gory Four, to be discussed in the next section. Finally,
stressed words as defined for Category Five were counted
and marked.

For purposes of statistical comparison between the
subjects' explanations to the two different listeners, in-
stances of the categories listed below were tabulated. The
rules which were used in doing so are also described, along
with brief rationales for particular methods. Transcripts
of the tapes are reproduced in the Appendix.

Category 1: Number of utterances in the explanation.

The word "utterances" is used here to refer to se-
quences of words which are separated by intonation contours
and silences into units most clearly resembling sentences.
Nearly all of these utterances did consist of a subject-
predicate combination, but elliptical sequences such as
"all of it" (See Transcript 6), or sequences which trailed
off and were not completed were included in this count when
they were clearly distinguished from preceding and follow-

ing sequences. It is recognized that the judgments of the rater in segmenting utterances are more subjective than other more easily quantifiable factors such as word counts, but repeated ratings resulted in a high reliability correlation, indicating consistency of the rater on successive judgments.

Category 2: Number of words.

In counting words the following arbitrary rules were applied: 1) Contractions were counted as one word, 2) Interjections such as "Okay" and "Like" were counted as individual words. Otherwise, normal word boundaries were observed.

Category 3: Mean Length of Utterance (MLU).

The mean number of morphemes per utterance was computed according to criteria established by Roger Brown (1970), with the exception of the catenatives "wanna" and "gonna" which were counted as two morphemes each.

Category 4: Number of Manual Gestures.

A "manual gesture" was defined as a discrete motion of one or both hands which either: 1) Clearly indicated a particular element of the physical setting in which the task occurred, or 2) Was clearly used to increase the communicative force of a word (e.g., slapping the table for emphasis). Gestures, of course, can be continuous and gradual, so the problem of segmenting them was dealt with

by counting a motion, regardless of its duration, as one
gesture until it was shifted to focus on a different as-
pect of the situation. For example, a motion to one of the
puppets might have continued as the subject said, "You pour
your water into the puppet's glass;" however, it would be
counted as only one gesture. If the subject then briefly
pointed to the listener before pointing at the puppet again,
two more gestures would be added for a total of three.
Category 5: Number of stressed words.

This category is another which is dependent upon
subjective judgments of the rater; however, reliability
over repeated ratings was substantial (r=.86). The term
"stress" is inherently vague, defining as it does a fluc-
tuating combination of pitch, loudness and durational para-
meters, and the task of objectively quantifying it was not
undertaken in this study. Instead, the investigator opera-
tionally defined stressed words as those which were clearly
most auditorily salient relative to the other words in an
utterance. Therefore, complete intonational patterns were
not evaluated; only those words which were unambiguously
more prominent in the judgment of the rater were counted as
stressed. This less than perfectly rigorous method of
measurement proved to be unexpectedly easy to carry out
when it was accomplished by listening to the audio segment
of each tape only; auditory saliency was much more diffi-

cult to discern against a background of simultaneous visual events on the tape.

Category 6: Combined total of stressed words and gestures.

This category was included in order to provide a rough attempt to examine the prosodic or "non-linguistic" features by which subjects could specify or focus on new information. "Non-linguistic" is not a felicitous phrase, but it is intended to convey the concept of strategies used by the subjects which relied less directly on linguistic (i.e., syntactic or semantic) factors.

It sould be emphasized that categories 4, 5, and 6 refer to the total number of occurrences of these factors. The relationships among gestures, intonation patterns and utterances have not yet been investigated to an extent which would allow a meaningful examination of such factors as "Number of gestures per utterance" or "Number of non-linguistic devices per utterance." It should be noted that for the purposes of this investigation the basic unit of interest is the entire explanation of a particular subject rather than his individual utterances, and although it is possible that the study of such ratios could provide useful information, the scope of the present investigation precluded the inclusion of these factors.

Category 7: Number of utterances seeking listener comprehension feedback.

In this category were included specific attempts to

to gauge listener comprehension, regardless of the number of words used to do so in each attempt. For example, question particles occurring in sentence-final position (e.g., ".....,okay?" ".....,see?" ".....,right?") were counted as single attempts, but the same words in sentence-initial position were not included, as they do not seem to serve the same function. Entire phrases or utterances which served only to assess listener comprehension were also counted as single attempts. Therefore the phrases, "You pour yours here, see?" and "Now do you get it?" were each counted as one utterance seeking listener comprehension feedback for the purposes of this category.

Category 8: Number of quantifiers.

Included in this category were quantifiers as discussed by Chafe (1970), such as "all," "some," "the rest," "the whole," "a few," numerals, and so on--all words which specified an answer to the question, "How much?"

Category 9: Number of references to the "not-real" characteristics of the task.

This category was developed after it was observed to occur frequently in the data. It describes explicit reference to the shared context as "not-real" by the speaker in his explanation to his listeners. Words interjected into an utterance such as "pretend" or "let's say" as well as utterance-length disclaimers such as, "You don't really pour it," are included in this category.

In addition to categories 1-9, instances of the following characteristics were also investigated. All of these constructions have been related to presuppositions by either Chafe (1970) or Bates (1976), but the relatively unstructured situation in which the subjects gave their explanations to listeners made it impossible to ensure that they would occur in all samples. In addition to counting those constructions in categories 10-13 which did occur, each such instance was analyzed in more detail as to the presuppositional or focusing strategies which it seemed to reveal.

Category 10: Number of passive constructions.

Category 11: Number of cleft-sentence constructions.

Category 12: Number of affirmative verb inflections.

Category 13: Number of instances of ellipsis.

Another factor which had to be dealt with in analyzing the data involved the occasions on which the four-year-old listener forgot his instructions and commented on or reacted to the subject's explanation to him. On the few occasions when this happened, the investigator chose to exclude the utterances of the subject which clearly dealt with topics introduced by the four-year-old which had not been previously mentioned by the subject, along with direct responses of the subject to comments made by the listener. These types of interchanges were relatively easy to identi-

fy, and it appeared to the investigator that deletion of these sequences did not notably alter the substance of the subject's remaining utterances. Thus, it was felt that any possible loss in reliability or validity incurred by such deletions was worth the additional data gained by not excluding these transcripts from the study.

Due to the extremely time-consuming process involved in transcribing the tapes as described above, the examiner was the only rater of the tapes. The resulting problem of reliability of the transcriptions was dealt with by repeated transcriptions of randomly-selected segments by the examiner. Correlations between first and second transcriptions were computed and are as follows: 1) Verbal output: r=1.0, 2) Number of gestures: r=.97, 3) Number of stressed words: r=.86. All of these correlations were found to be significant at the .05 level of confidence. It thus appears that judgments of the examiner were consistent over ratings. However, it is noted that the stress and gesture categories are inherently more ambiguous than simple word transcription, and it is likely that more specific rules for counting them, in addition to several practice sessions, would have been necessary in order to obtain similar levels of agreement among several judges.

CHAPTER III

RESULTS AND DISCUSSION

Simple t-ratios were computed for the first nine categories described in Chapter 2, with the results listed below. An asterisk (*) denotes those values which were found to be significant at the .05 level of confidence. All values are mean values; the first column represents the mean values for each category in explanations to the four-year-old listener; the second column represents mean values for each category in explanations to the adult.

Category	Child	Adult	t-ratio
1. Utterances	6.16	3.83	5.614*
2. Words	58.00	45.67	3.501*
3. MLU	10.83	14.50	2.422*
4. Manual gestures	8.00	5.33	3.812*
5. Stressed words	6.08	4.42	1.982
6. Gestures and stressed words	14.25	9.75	3.866*
7. Listener comprehension probes	1.16	.25	2.182
8. Quantifiers	2.17	2.00	.214
9. References to "not-real"	.75	.08	2.964*

Results of the analysis of categories 1 and 2 reveal that subjects used significantly more individual words and utterances in communicating information, to the four-year-old listener than to the adult listener. However, as indicated by category 3 results, they did so by using shorter utterances. Category 4 also reveals that subjects used significantly more manual gestures to the four-year-old than to the adult. The number of stressed words did not prove to be a significant difference in the output to the two different listeners, but the combined total of gestures and stressed words, in category 6, was significantly different. The data indicate that significantly more non-linguistic processes were used in communication with the four-year-old listener than in output to the adult.

In addition, category 9 reveals that significantly more references to the "not-real" character of the task were made to the four-year-old than to the adult listener.

Categories examined which did not prove to be significantly different between listeners included category 7 (number of utterances seeking listener comprehension feedback), category 8 (number of quantifiers), and category 5 (number of stressed words).

Instances of categories 10 through 13 were very rare in the transcripts. No passive constructions (Category 10) occurred, which is not surprising in light of

findings by Hutson and Powers (1974) that concrete-opera-
tional-stage children have just reached the level at which
they are consistently able to understand the semantic re-
lations underlying the surface structure of such construc-
tions.

One subject produced a cleft-sentence construction
(Category 11) in speaking to both of his listeners. No in-
stances of affirmative verb constructions (Category 12)
were recorded.

Attempts to count occurrences of ellipsis (Category
13) proved to be difficult and the results were unsatis-
factory, in the opinion of the investigator. Instances of
ellipsis took such a wide variety of forms in different ut-
terances that the validity of comparing them as an undif-
ferentiated quantity seemed highly questionable. No occur-
rences of telegraphic ellipsis were recorded, and it ap-
pears to the investigator that the study of elliptical
structures would be far more accurately accomplished
through examination of particular transcripts in detail
than through cursory attempts at quantification.

In addition to the attempts at quantification repre-
sented by the thirteen categories mentioned above, a quali-
tative comparison of the two explanations of each subject
was made by the invesitgator. While the investigation of
specific categories or presuppositional and focusing

strategies across subjects reveals some general trends or patterns which may be useful in the initial analysis of large corpora of data, it appears that valuable intra-individual information can be gleaned from a detailed comparison of the two explanations made by each subject. This method possesses the same advantages and disadvantages of naturalistic techniques of analysis as opposed to standardized testing. However, at this point in the development of the field of pragmatics, particularly in the area of presuppositional and propositional strategies, there are far more unknowns than knowns, and a broad qualitative approach may be a necessity in evaluating the usefulness of the categories chosen for analysis and in recognizing those factors not previously anticipated.

To demonstrate the general approach used in comparing presuppositions ("old" information) and propositions ("new" information) in the explanations of a subject to his two different listeners, some sample analyses from particular transcripts will be presented. All of the transcripts are reproduced in the Appendix and have been arranged so as to facilitate the comparison not just of successive utterances but of the utterances to each listener which attempt to communicate or deal with similar information. This procedure was made possible by the fact that the information to be communicated to each listener fell within a fairly

narrow range, namely, the short, simple task. It was made

necessary by the unstructured character of the task and the

consequent latitude, within the informational constraints

of the task, possessed by each speaker in structuring his

output to his listeners. In the discussion which follows,

several transcripts and portions of transcripts will be

examined. The first was chosen at random and is discussed

in its entirety. The others were chosen for inclusion by

the investigator in order to illustrate some of the more

striking differences about speaker perceptions of listen-

ers which they reveal. The first transcript, from Subject

1, is reproduced below. Gestures are indicated by small

crosses above the lines, while stress is represented by un-

derlining those words on which it occurred. Separate ut-

terances are numbered.

Output to four-year-old

1. See, let's say my puppet
   is thirsty and I pour
   this glass of water into
   this glass and then your

Output to adult

1. Okay, let's say my pup-
   pet is thirsty so I
   pour my whole glass of
   water into this glass
   and then your puppet
   is thirsty so you pour
   as much water that I
   poured in your glass.

2. Then let's say your pup-
   pet is thirsty so you
   pour just as much water
   in that I poured in my

puppet's glass a�十s in
your puppet's glass.

3. Now do you under-
   stand how to play it?

According to the investigator's interpretation of Chafe's (1970) model, the distribution of new (focused) and old (presupposed) information in these samples <u>without</u> the inclusion of gestural or intonational marking is as follows:

<u>Output to four-year-old</u>		<u>Output to adult</u>	

Output to four-year-old

1. ...my puppet is thirsty
   <u>old</u> over "my puppet", <u>new</u> over "is thirsty"

   and I pour this glass of
   <u>old</u> over "I", <u>new</u> over "pour", <u>new</u> over "this glass of"

   water into this glass and
   <u>new</u> over "water", <u>new</u> over "into this glass"

   then your
   <u>old</u> over "your"

2. Then let's say your puppet
   <u>old</u> over "your puppet"

   is thirsty so you pour
   <u>new</u> over "is thirsty", <u>old</u> over "you", <u>new</u> over "pour"

   ...just as much water in that
   <u>new</u> over "much water in that"

   I poured in my puppet's
   <u>new</u> over "poured in my puppet's"

   glass as in your puppet's
   <u>new</u> over "glass", <u>new</u> over "in your puppet's"

   glass.
   <u>new</u> over "glass"

3. Now do you understand how
   <u>old</u> over "you", <u>new</u> over "understand", <u>new</u> over "how"

Output to adult

1. my puppet is thirsty
   <u>old</u> over "my puppet", <u>new</u> over "is thirsty"

   so I pour my whole glass
   <u>old</u> over "I", <u>new</u> over "pour", <u>new</u> over "my whole glass"

   of water into this glass
   <u>new</u> over "of water", <u>new</u> over "into this glass"

   and then your puppet
   <u>old</u> over "your puppet"

   is thirsty so you pour
   <u>new</u> over "is thirsty", <u>old</u> over "you", <u>new</u> over "pour"

   as much water that I
   <u>new</u> over "much water that I"

   poured in in your glass.
   <u>new</u> over "poured in", <u>new</u> over "in your glass"

<u>new</u>
to play it?

However, it is precisely the gestural and intonational focusing which interests us in this case, since the propositional and presuppositional structures of the utterances are otherwise very similar for the two listeners. We note that the first additional non-linguistic focus occurs on the first word of the utterance to the four-year-old. "See" receives gestural emphasis and thus increased focus, while the interjection, "okay" to the adult remains informationally neutral. "See" and "okay" are probably generally produced by speakers as empty or "dummy" particles which seem analogous to the "uhs" in the following sequence: "Uh, I went to the, uh, late show." While these interjections may certainly fulfill some functions, it seems unlikely that the deliberate communication of information is among them. However, the situation changes with the addition of a focusing device (in this case a gesture accompanying "see" as spoken to the four-year-old); in this instance the interjection may be used in a more direct way, as a signal that information is about to be communicated. Such an interpretation must remain only conjectural at this point, but it seems plausible that the speaker may have deliberately chosen to add focus in order to elicit closer attention from the younger listener--a degree of attention

which may have been presupposed of the adult listener.

Also in the first sentence it is noted that the noun phrase "my puppet" receives additional focusing in both transcripts, whereas it would otherwise most generally be classified as old or presupposed information. To the child, however, gestural emphasis extending over the whole phrase occurs, while the focusing strategy toward the adult consists of additional intonational stress of the possessive pronoun only.

Following the copula "is," "thirsty" occupies a position in the syntactic structure of the sentence which marks it as new information. Subject 1 has chosen to mark it even more explicitly, through both stress and gesture, for the younger listener. Gestural foregrounding only is used on this word for the adult listener.

In the next clause, (leaving aside the issue of new-old information hierarchies among different clauses, which has not been addressed by language analysts, to the writer's knowledge), the adult receives an added "new" marker via a gesture which extends over the subject and verb, "I pour." In Chafe's (1970) scheme, "pour" and "my whole glass" would normally be classified as containing the new information while the surface-structure subject, "I" would represent the presupposed information. Thus, the speaker in this case increases the focus on the subject "I"

to the adult, while allowing it to remain unmarked and pre-
supposed in his output to the child. This trend toward in-
creased explicitness in the output directed to the adult
continues in the manner in which the speaker completes the
clause. The patient, "this glass," would normally contain
new information and the child listener receives, in a sense,
double-reinforcement of this comment (a sort of triple fo-
cus). However, in his communication with the adult, the
speaker has used yet another strategy to focus on the pa-
tient: he has included not only gesture and stress, but
also a quantifier, the word "whole," which is an additional
marker of new information.

In the location phrase, "into this glass," which
would normally convey new information according to Chafe
(1970), the speaker emphasizes the status of this informa-
tion with combined gesture and stress for the four-year-
old, while adding only a gestural focus for the adult.

At this point in the transcript the speaker begins
a new clause by highlighting the normally presupposed infor-
mation contained in the surface-structure subject. Gesture
and stress, to the child listener, and stress only, to the
adult, focus on the possessive pronoun "your." However,
for some reason the speaker abruptly interrupts his speech
to the child before beginning a separate sequence of
clauses. He chooses to focus on the syntactic subject

"you" with gesture and stress in addressing the child; this same word remains as presupposed information in the communication to the adult listener. The normally "new" patient phrase, "as much water," receives added emphasis to the child listener in the form of not only gesture and stress but also a quantifier, "just," which is omitted (and thus presupposed) in his output to the adult listener.

The next sequence of words is interesting in that the speaker provides an almost elliptical output to the adult relative to the detailed phrases communicated to the child. The location phrase, "in my puppet's glass," following "I poured" is omitted from the output to the adult, as is the possessive notation, "puppet's," which occurs in the output to the child as "your puppet's glass." Finally, an entire additional question is addressed to the child listener seeking feedback as to his comprehension; no such attempt is made toward the adult listener.

This analysis has been lengthy and possibly somewhat tedious to the reader. Obviously, important questions regarding motivations and reasons for the use of particular presupposition-proposition strategies by the speaker have not been addressed, although Bates (1976) postulates that the ability to focus is the result of attentional factors. The intent here has simply been to distinguish and identify these strategies in a sequence of utterances. However, it

is felt that such an approach holds promise as a technique for pinpointing the focusing and presupposing methods used by speakers. From this analysis of a small sample of language it can be concluded that Speaker 1 makes use of gestures and intonation as well as ellipsis and quantifiers in structuring his presuppositional and propositional hierarchies. A larger sample might reveal the use of variations in syntactic order, such as passive or cleft-sentence constructions, to accomplish similar ends. It is not possible to draw any detailed conclusions about why particular strategies are used with different listeners, but some trends can be observed, including the ellipsis used with the adult and the focus on surface-structure subjects which was provided to the child listener. Again, it is emphasized that this type of analysis is a preliminary attempt and would appear to be cumbersome and time-consuming to the investigator faced with output from more than one speaker. However, it seems likely that refinements and applications of these sorts of analyses could contribute valuable information regarding individual speakers. Of course, the familiar distinction between competence and performance must be kept in mind as the analyses are made; the lack of a focusing or presupposing strategy does not permit the conclusion that the speaker is unable to use the strategy. Several observations in different settings would be necessary prior to such a judgment, which even then would have to be made

cautiously, with reference to the child's capabilities across a variety of other social, cognitive and linguistic skills.

In looking at the other transcripts from subjects in this study, one cannot fail to note the variability which occurs among subjects, despite the trends which were revealed in the quantitative analysis. It seems likely that examination of entire transcripts provides a much more complex and possibly more accurate view of the ways in which individuals structure their informational output to the two different listeners.

In most cases the transcripts of a subject reveal striking similarities in the ways in which the information is presented to the two listeners. There seems to be, for each subject, a basic sequence in which he presents his information to both listeners, and presuppositional variants are most often secondary to this underlying scheme. Also, it can be seen that focusing or presupposing devices used by one speaker to the four-year-old listener may be used by another to the adult listener. An example can be found in the transcript of Subject 8, who, in contrast to the majority trend, separates and shortens his utterances to the adult listener relative to those used with the four-year-old listener:

Output to four-year-old	Output to adult
1. Now, like, your puppet got thirsty so you pour that glass of water into there.	1. Like, your puppet was thirsty.
	2. So you know what you have to do?
	3. You pour that glass of water into there.

A speaker may also alternate in his use of a particular focusing device, using it at one point in addressing the child listener and then later with the adult. The transcript of Subject 9, for example, contains the following sequences:

Output to four-year-old	Output to adult
1. I'll take this glass and pour it all in here.	1. I'll pour all of the water in here.

The sentence to the child is more detailed as to the action which will occur because the speaker uses additional words to specify this action. However, precisely the opposite occurs later in the transcript:

Output to four-year-old	Output to adult
2. And you try and get the same amount in this glass, okay?	2. And you'll try to get the same amount in this glass right here.

In this case, the utterance to the adult listener

is made more explicit than that to the child listener through the use of additional words, "right here," to specify the referent of the phrase, "this glass."

Apart from statistical differences or detailed word-by-word analyses, several of the transcripts reveal fascinating information regarding speaker assumptions about the needs of the four-year-old listener as opposed to those of the adult. One of the most interesting patterns has to do with explicit references by some of the speakers to the perceptual consequences of the actions which they were describing. For example, Subject 12 gave a detailed explanation to the four-year-old, including information which was not even mentioned to the adult. The salient utterances are marked with an asterisk:

Output to four-year-old	Output to adult
6. 'Cause there's the same amount right there.	6. 'Cause there's the same amount of water in here, isn't there?
7. Those two are the same amount.	
8. *Even though this one's fatter and that one's skinnier there's still the same amount.	

Two other subjects made specific statements regard-

ing the visual consequences of pouring the water (Subjects 6 and 7):

Output to four-year-old	Output to adult
3. And then you pour this in there.	1. You pour this, all of it, in the glass.
4. All of it.	
5. *And it goes up there.	
5. See, I'll pour mine in there and then-	2. I pour my puppet some water and then you pour your puppet the same amount.
6. *It will go up.	

It is known that preoperational-stage children have difficulty separating their cognitive judgments from perceptual factors; when faced with conflicting evidence from his reasoning and his vision the preoperational-stage child will most often choose his visual perception as the more accurate reflection of reality. This characteristic is the basis for the preoperational-stage child's inability to perform conservation tasks. His visual perception of two equal quantities as transformed into different forms takes precedence over the logical judgment that without addition or subtraction from either one their quantities must have remained invariant. Thus he errs on such tasks, saying that different water levels entail different amounts, for

example.

It appears that the three subjects discussed above may have been able to recognize some aspect of this characteristic of the four-year-old listener and to utilize it in constructing their explanations of the task, which did involve conservation.

Some subjects gave yet another possible indication of their comprehension of the four-year-old's dependency on perceptual cues. In several cases the subjects' explanations to the four-year-old were accompanied by explicit pantomime, while gestures to the adult listener simply indicated reference or emphasis. In one case, a subject went so far as to recreate the sound effects of the water being poured as he explained the task to the four-year-old. (See Transcript 11.) This same subject also took the four-year-old's hand and moved it through the desired motions as he explained them--a technique which would be construed as a sophisticated addition of cues if it were used by a teacher or speech clinician to increase the probability of a correct response by a young child! No such pantomiming occurred in explanations to the adult.

One device which was significantly more often by the speakers in communicating with the four-year-old listener and was tabulated as Category 9 involves explicit reference to the shared context of the explanation as "not-

real." As mentioned in the description of this category, some subjects carefully accentuated the "pretend" aspects of the situation through entire sentences: "But you don't really pour it. I'm just telling you how." Others inserted words or phrases to explicitly establish the "not-real" quality of the actions being described: "Your puppet was thirsty, pretend, so you..."

Why the younger listener was believed to require such additional clarification is a matter open to conjecture. This trend is particularly interesting because of its apparent relation to another pragmatic structure, the conversational postulate (Bates, 1976). Conversational postulates are unspoken agreements as to the conventions underlying communicative interchanges. The fact that some of the speakers in this study explicitly defined the conventions being followed (i.e., "This interchange is about actions which are not real.") in their statements to the four-year-old but not to the adult is a fascinating finding. It would be tempting to speculate that the subjects who used this device were responding to some degree of perception of the difficulty of the preoperational-stage child in dealing with abstractions rather than actions. These subjects clearly felt that it was necessary to ensure that the situation was adequately understood by the four-year-old, whereas they presupposed this understanding of the

adult listener.

CHAPTER IV

CONCLUSIONS

This study, as a preliminary investigation into the area of presupposition and focusing strategies in the language of concrete-operational-stage boys, has not resulted in a set of clear-cut conclusions. In fact, its outcome might be better described as a delineation of some of the questions which need to be asked, rather than as a series of answers. It has provided a positive response to the question of whether seven-year-old, concrete-operational-stage males use different presuppositions in communicating with two listeners of different ages. The significant differences between the explanations to the adult and those to the four-year-old provide a clear indication that at least some adjustment of the utterances and accompanying non-linguistic phenomena so as to accommodate listener needs was taking place. Utterances to the four-year-old were shorter,but there were more of them. More gestures were used to the four-year-old, and the subjects attempted to check on the four-year-old's comprehension of their output more frequently. Subjects also went to greater lengths to explicitly identify their explanations as abstractions

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in speaking with the young child.

These findings showing inter-subject trends should not be allowed to obscure the need for more detailed examinations of individual results, however. The study has demonstrated a general procedure for identifying the distribution of new and old (focused and presupposed) information in an utterance, but it is clear that this method is at best a primitive one. It does provide a means of roughly determining some of the strategies used by a particular speaker, but it leaves unanswered a number of questions, such as those regarding information distribution over successive utterances. It is also impossible to say, at this point, whether the strategies investigated in this study function independently or whether there are identifiable combinations of strategies which are used in predictable ways to structure the new and old information in an utterance.

In order to answer these types of questions, it seems clear that far more detailed procedures for identifying and classifying gestures and stress are necessary. Head and body gestures, along with eye contact, may well be used by speakers to emphasize elements of their communications. By the same token, the entire intonational pattern of an utterance may serve a presupposing or focusing function. These are just two of numerous possibilities which

this study was unable to address.

It is emphasized that the findings of this study must be interpreted with caution, for several reasons. First, it must be remembered that presuppositions and propositions (in the sense of old and new information carriers) are entities which must be inferred rather than directly observed. Much more work is needed before theoretical models such as those discussed by Chafe (1970) and Bates (1976) can be validated in terms of speaker perceptions. There is as yet no answer to the question of whether the theoretical explanations correspond with the speaker's perception of the new and old information in his utterance.

The problem of dealing with inferred entities in this study was compounded by the degree to which ratings relied upon subjective judgments of the investigator. The small sample size and the fact that listener variables could not be further addressed must also be considered in viewing the results of the study.

In sum, the tendency to simplify the results of this study myst be avoided. A beginning has been made and some possibilities exposed, but it remains for future research to refine the methods used and to further disentangle the factors operating when a speaker constructs an informational hierarchy in his communications.

Following a preliminary investigation such as this, the suggestions for future research are numerous. Mention will be made here of a few possibilities which are of particular interest to the investigator.

First, having now a rough sample of some of the presuppositional and focusing strategies used by concrete-operational-stage males, data from speakers representing other Piagetian stages would be useful for purposes of comparison. Is there a predictable progression in the acquisition and usage of these strategies? What correlations exist between presuppositional skill and other cognitive, linguistic and social variables?

There also remains the large and important area of individual patterns. Are there predictable interrelationships among strategies? Do some speakers tend, for example, to use fewer linguistic devices than others? If so, do they then tend to utilize more intonational and gestural cues?

Another topic for further investigation is that of listener reaction to particular speaker strategies. Extending the question of what speakers think will be the most effective presentation for their listeners, studies as to the actual responses of listeners would be very helpful. If the listeners in a study similar to the present one had actually been tested on their ability to perform the task

following the speakers' explanations, would young listeners
be found to comprehend more information when is it pre-
sented with particular focusing strategies? How would
speakers modify their presuppositional output if they were
informed that their listeners had failed the task and they
had to explain it again?

As data on these types of questions accumulate and
the patterns of presuppositional usage in normal children
emerge, comparisons with the patterns used by children with
language disorders will be of particular interest to lan-
guage pathologists. It is evident that most of the pieces
to the puzzle labeled "language disorders" are still mis-
sing, and it seems plausible that the absence or deviance
of abilities involved in adjusting communications to fit
listener needs may be found to play an important role in
the conception of some language disorders. An example
which comes to mind is the language of children to whom the
label "autistic" is applied. The language of these chil-
dren is often described as monotonic and lifeless; lacking
intonational and gestural cues, what presuppositional stra-
tegies do such children employ in their attempts at com-
munication?

These are but a few of the possible directions for
future study in the area of presuppositions. The topic is
a challenging one, and it is likely that the answers to

these and other questions will not be easily discovered. However, the importance of the subject as a means of extending our conception of the process of human communication ensures that the results will be worth the difficulties encountered.

APPENDIX

TRANSCRIPTS

Included in this appendix are transcripts of the explanations of each subject to the four-year-old listener (referred to as "Child") and to the twenty-two-year-old listener (referred to as "Adult"). Manual gestures are symbolized by plus signs (+) placed above the words on which they begin. Stressed words are underlined. Interchanges deleted from the transcripts for purposes of tabulating categories have been placed within parentheses. In addition, totals for each of the twelve categories scored are recorded at the end of each transcript, with separate columns for explanations to the child and to the adult. The categories are numbered, and the list of their titles is reproduced below to aid in reference to them:

Category 1   Number of utterances
Category 2   Number of words
Category 3   Mean length of utterance
Category 4   Number of manual gestures
Category 5   Number of stressed words
Category 6   Combined total of stressed words and gestures
Category 7   Number of utterances seeking listener comprehension feedback
Category 8   Number of quantifiers
Category 9   Number of references to "not-real"
Category 10   Number of passive constructions
Category 11   Number of cleft-sentence constructions
Category 12   Number of affirmative verb constructions

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Subject 1

Output to Child	Output to Adult

1. See, let's say my puppet is th$\overset{+}{i}$rsty and I pour th$\overset{+}{i}$s glass of water into th$\overset{+}{i}$s glass and then y$\overset{+}{o}$ur-

2. Then let's say y$\overset{+}{o}$ur puppet is thirsty so y$\overset{+}{o}$u pour j$\overset{+}{u}$st as much as water in that I poured in my puppet's glass a$\overset{+}{s}$ in your puppet's glass.

(Child:"But they don't drink it really."
Subject: "Of course, they're puppets. It's just a game.")

3. Now do you understand how to play it?

1. Okay, let's say my puppet is thi$\overset{+}{r}$sty so $\overset{+}{I}$ pour m$\overset{+}{y}$ whole glass of water into th$\overset{+}{i}$s glass and then your puppet is thirsty so you pour a$\overset{+}{s}$ much water that I poured in in y$\overset{+}{o}$ur glass.

("He told me that the puppets can't drink it. Of course they can't.")

Category	Totals Child	Adult
1. Utterances	3	1
2. Words	56	37
3. MLU	20	38
4. Manual gestures	10	6
5. Stressed words	9	6
6. Gestures and stressed words	19	12
7. Listener comprehension probes	1	0
8. Quantifiers	2	2
9. References to "not-real"	2	1
10. Passive constructions	0	0
11. Cleft-sentence constructions	0	0
12. Affirmative verb constructions	0	0

Subject 1

Subject 2

| Output to Child | Output to Adult |

Output to Child

1. Well see, I'm gonna give my puppet a drink and you're gonna give your puppet a drink so I take this glass and I pour it into that glass and you this glass and pour it into that glass.

2. Now, would there be the same amount of water in this glass as that glass?

   (Child: Brief nod)

3. Okay, that's all.

4. That's how you play.

Output to Adult

1. Okay, see, I'm gonna give my puppet a drink and so I give him this glass of water and you're gonna give your puppet a drink so you give him this glass.

2. And then is this glass filled with the same amount of water as this glass?

3. And it is.

Category	Totals	
	Child	Adult
1. Utterances	4	3
2. Words	62	50
3. MLU	17	18
4. Manual gestures	8	5
5. Stressed words	8	8
6. Gestures and stressed words	16	13
7. Listener comprehension probes	0	0
8. Quantifiers	1	1
9. References to "not-real"	0	0
10. Passive constructions	0	0
11. Cleft-sentence constructions	0	0
12. Affirmative verb constructions	0	0

Subject 2

60

Subject 3

Output to Child

1. My⁺ baby's thirsty so I
   give him some water.

2. Now yóur⁺ baby's thirsty.

3. Now yóu⁺ give him some
   water.

4. That's all.

Output to Adult

1. My⁺ baby's thirsty so I
   give⁺ him some water.

2. Now yóur⁺ baby's thirsty
   so you give him some
   water.

3. That's all.

Category	Totals	
	Child	Adult
1. Utterances	4	3
2. Words	21	21
3. MLU	6	8
4. Manual gestures	4	3
5. Stressed words	2	1
6. Gestures and stressed words	6	4
7. Listener comprehension probes	0	0
8. Quantifiers	2	2
9. References to "not-real"	0	0
10. Passive constructions	0	0
11. Cleft-sentence constructions	0	0
12. Affirmative verb constructions	0	0

Subject 3

Subject 4

Output to Child	Output to Adult

1. See, you pour this-

                         1. You pour that water in

                            there and-

2. And you see, you pour

   yours-

                         2. You pour the same amount

                            of water in there and I

3. Let's say my puppet gets

   thirsty.

                            pour the same amount of

                            water in mine.

4. So I pour him some water,

   pretend, and you pour

   yours some water.

5. And then you ask if we

   both got the same amount

   of water.

                         3. Then you see if they

                            both got the same

                            amount of water.

Category	Totals Child	Adult
1. Utterances	5	3
2. Words	42	38
3. MLU	9	13
4. Manual gestures	6	3
5. Stressed words	3	1
6. Gestures and stressed words	9	4
7. Listener comprehension probes	0	0
8. Quantifiers	3	3
9. References to "not-real"	2	0
10. Passive constructions	0	0
11. Cleft-sentence constructions	0	0
12. Affirmative verb constructions	0	0

Subject 4

Subject 5

Output to Child	Output to Adult

Output to Child

1. See, what we do is, we-

2. I say, "My puppet wants a drink of water" and then I pour this glass of water into that glass.

3. Then you say "My puppet wants a drink of water" and you pour this glass of water into that glass of water.

4. But we aren't gonna put them in.

5. I'm just telling you how, okay?

Output to Adult

1. See, what we do is, we pour-

2. I say, "My puppet wants a drink of water" and then I pour this glass of water into that glass and then you say "My puppet wants a drink of water" and then you pour this glass of water into that.

3. That's what to do.

Category	Totals	
	Child	Adult
1. Utterances	5	3
2. Words	61	52
3. MLU	13	18
4. Manual gestures	5	6
5. Stressed words	6	4
6. Gestures and stressed words	11	10
7. Listener comprehension probes	1	0
8. Quantifiers	0	0
9. References to "not-real"	2	0
10. Passive constructions	0	0
11. Cleft-sentence constructions	1	1
12. Affirmative verb constuctions	0	0

Subject 5

Subject 6

Output to Child

1. Í have one cup of water,

   see?

2. I pour it in here.

3. And then yóu pour thís

   in thére.

4. Aĺl of it.

5. And it goes up thére.

6. Then I pour all of mine

   in thére, and it's the

   equal same.

Output to Adult

1. Yóu pour this, all of

   it, iń the glass.

2. And Í pour all of mine

   iń the glass.

3. And it it's the equal

   same, you win a prize.

4. That's how you play.

Category	Totals	
	Child	Adult
1. Utterances	7	4
2. Words	40	32
3. MLU	7	8
4. Manual gestures	7	4
5. Stressed words	7	2
6. Gestures and stressed words	14	6
7. Listener comprehension probes	4	0
8. Quantifiers	4	3
9. References to "not-real"	0	0
10. Passive constructions	0	0
11. Cleft-sentence constructions	0	0
12. Affirmative verb constructions	0	0

Subject 6

Subject 7

Output to Child

1. Okay, thís is my puppet and thát's your puppet, okay?

2. Okay, I pour mý puppet some water.

3. Now you pour your puppet just as much water as I did.

4. But yóu don't really pour it, okay?

5. See, I'll pour miné in there and then-

6. It will go up.

7. Then yóu pour the rest of yours in there.

Output to Adult

1. Thís is my puppet and thát's your puppet.

2. Í pour my puppet some water and then yóu pour your puppet the same amount.

3. But you don't just loók at mine to see if it's the same amount, you júst pour all of it.

Subject 7 (Cont.)

Output to Child	Output to Adult
8. Can you remember that?	4. That's all.
9. Now tell the truth, okay?	

Category	Totals	
	Child	Adult
1. Utterances	9	4
2. Words	66	45
3. MLU	8	12
4. Manual gestures	8	7
5. Stressed words	10	3
6. Gestures and stressed words	18	10
7. Listener comprehension probes	4	0
8. Quantifiers	3	4
9. References to "not-real"	1	0
10. Passive constructions	0	0
11. Cleft-sentence constructions	0	0
12. Affirmative verb constructions	0	0

Subject 7

Subject 8

Output to Child	Output to Adult

Output to Child

1. Like thát puppet's your puppet.

2. Thís puppet's my puppet, okay?

3. Now, like yóur puppet got thiŕsty so you póur that glass of water into thére.

4. But you don't really pour it.

5. So and then like mý puppet got thirsty so you pour thát glass of water in there.

Output to Adult

1. See, like thát puppet is your puppet.

2. Thís puppet's my puppet, okay?

3. Like yóur puppet was thirsty.

4. So you know what you have to do?

5. You póur that glass of water íñto there.

6. Then mý puppet got thirsty so you pour thát glass of water íñto there.

(Child: "But you don't got to pour it really."
Subject: "I know.")

Subject 8 (Cont.)

Output to Child	Output to Adult
6. And then that's all.	7. And that's all.
7. That's all you have to do.	

Category	Totals Child	Adult
1. Utterances	7	7
2. Words	58	50
3. MLU	9	7
4. Manual gestures	9	8
5. Stressed words	6	6
6. Gestures and stressed words	15	14
7. Listener comprehension probes	1	1
8. Quantifiers	0	0
9. References to "not-real"	1	0
10. Passive constructions	0	0
11. Cleft-sentence constructions	0	0
12. Affirmative verb constructions	0	0

Subject 8

Subject 9

Output to Child	Output to Adult

Output to Child

1. I'll take this glass and pour it all in here.

2. And you try and get the same amount in this glass, okay?

3. Think you know how to play the game now?

4. See, I'll pour all this glass in here and you'll see how much is in here.

5. Then when you see this glass you pour it all in here.

6. If you think it's as much as this one, stop, okay?

Output to Adult

1. I'll pour all of the water in here.

2. And you'll try to get the same amount in this glass right here.

3. And then it you get the right same amount, you get a prize.

Subject 9 (Cont.)

Output to Child   **Output to Adult**

7. Now you know how to play.

Category	Totals	
	Child	Adult
1. Utterances	7	3
2. Words	76	34
3. MLU	11	9
4. Manual gestures	9	3
5. Stressed words	5	3
6. Gestures and stressed words	14	6
7. Listener comprehension probes	3	0
8. Quantifiers	5	3
9. References to "not-real"	0	0
10. Passive constructions	0	0
11. Cleft-sentence constructions	0	0
12. Affirmative verb constructions	0	0

Subject 9

Subject 10

Output to Child	Output to Adult

1. See, first I take this glass.

2. I pour it in that glass, 'cause he wants a drink.

3. You would take this glass and pour it in that glass, 'cause that guy would be thirsty.

4. And then you say if they got the same amount.

5. That's all.

1. First I take this glass and pour it in this glass 'cause this guy would be thirsty.

2. You do the same so you put this glass right here and pour it in this glass 'cause that guy would be thirsty.

3. Then next you tell if they're the same amount.

Category	Totals Child	Adult
1. Utterances	5	3
2. Words	46	49
3. MLU	11	9
4. Manual gestures	7	6
5. Stressed words	4	9
6. Gestures and stressed words	11	15
7. Listener comprehension probes	0	0
8. Quantifiers	1	1
9. References to "not-real"	0	0
10. Passive constructions	0	0
11. Cleft-sentence constructions	0	0
12. Affirmative verb constructions	0	0

Subject 10

Subject 11

Output to Child	Output to Adult

1. Okay, see, you have thése two glasses of water, right?

2. Okay, thís is your puppet and thís is mine.

3. Okay, doń't touch any of it.

4. Okay, mý puppet's thirsty so I'ḿ gonna give him a drink, okay?
(Subject pantomimes pouring his water)

5. Now yóu give your puppet a drink.

6. Yóu go like this, yóu take your hand and pretend you're gonna póur

1. Okay, you see we have twó glasses filled with water.

2. Okay, see, mý puppet's thirsty so I take thís glass and pour it iń here.

3. Then yóur puppet's thirsty so you pour as much water as I did in thát glass.

Subject 11 (Cont.)

Output to Child	Output to Adult
something.	4. Then you see if we both have the same amount to drink.
7. Take your hand and go "sssshhhh."	
(Subject grasps child's hand and moves it, making a sound like running water.)	
8. Okay, do I have the same amount of water as you do?	

Category	Totals	
	Child	Adult
1. Utterances	8	4
2. Words	75	53
3. MLU	10	14
4. Manual gestures	14	6
5. Stressed words	5	3
6. Gestures and stressed words	19	9
7. Listener comprehension probes	2	0
8. Quantifiers	1	3
9. References to "not-real"	1	0
10. Passive constructions	0	0
11. Cleft-sentence constructions	0	0
12. Affirmative verb constructions	0	0

Subject 11

Subject 12

Output to Child	Output to Adult

Output to Child

1. Okay, I'm gonna tell you how to play the game.

2. Okay, my puppet's <u>thirsty</u> so I pour him a glass of water.

3. Your puppet's thirsty too, so <u>you</u> pour him a glass of water.

4. And is there the same amount of water in each glass?

(Child nods briefly.)

5. How come?

(Child shrugs.)

6. 'Cause there's the same amount right <u>there</u>.

Output to Adult

1. Okay, you wanna play it now?

2. Okay, this glass I give my puppet 'cause my puppet's thirsty.

3. Your puppet's thirsty.

4. And so to play the <u>game</u> you pour your puppet a glass of <u>water</u> and I pour <u>my</u> puppet a glass of water and I'm supposed to ask you if they're the <u>same</u> amount.

5. Would they <u>be</u>?

(Child nods briefly.)

Subject 12 (Cont.)

Output to Child

7. Thόse two are the same

   amount.

8. Even though thίs one's

   fatter and thἀt one's

   skinnier there's still

   the same amount.

9. And oύr puppets are still

   thirsty so they'll drink

   next.

10. And then when you're

    done you'll win a prize.

Output to Adult

6. 'Cause there's the sἀme

   amount of water in here,

   isn't there?

7. Now you get it?

8. And then when you're

   done you get a prize,

   like, if you say it

   right.

Category	Totals	
	Child	Adult
1. Utterances	10	8
2. Words	93	87
3. MLU	10	12
4. Manual gestures	10	7
5. Stressed words	8	7
6. Gestures and stressed words	19	14
7. Listener comprehension probes	1	2
8. Quantifiers	4	2
9. References to "not-real"	0	0
10. Passive constructions	0	0
11. Cleft-sentence constructions	0	0
12. Affirmative verb constructions	0	0

Subject 12

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