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ABSTRACT

This longitudinal pilot study, which extends Veneziano's (1987) work on phonetically and semantically contingent maternal response types, compared, microanalytically and globally, maternal response types and mother-child dyadic interactions of normally developing and Down syndrome children. Participants were three normally developing infants, five children with Down syndrome, and their mothers. Normally developing children were all 7 months of age at the beginning of the study. Children with Down syndrome ranged in age from 7 to 23 months. Dyads were videorecorded at play twice per month over a year. Each tape was transcribed and coded on the child variables of onset of consonants and word use, and on the maternal response types: (1) phonetically contingent; (2) semantically contingent; (3) noncontingent; and (4) no response. Reported results illustrate the advantages of microanalysis over whole-session analysis and of distinguishing between phonetic and semantic contingency. Although mothers of children with Down syndrome, as a group, were no less responsive or contingent to their children, they were much less phonetically contingent; that is, they rarely repeated or expanded their children's vocalizations. Microanalysis revealed that some of these mothers were even more semantically contingent to their children's first consonant productions than to other vocalization types. (RH)

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Mother-Child Interactions: A Longitudinal Microanalysis

BU Conference on Language Development, October 1987

A number of investigators (e.g., Chapman, 1981; Hardy-Brown, Plomin, & DeFries, 1981; Mervis, 1984; Scherer & Olswang, 1984; and Veneziano, 1987) have demonstrated the important role of maternal contingent responses in child linguistic development. Veneziano, in particular, has made a distinction between those maternal responses which are phonetically contingent to a child vocalization, and those which are semantically contingent. (NB: Veneziano herself uses slightly different and, I believe, less clear terminology.) Her data indicate that the child is more likely to imitate her mother's phonetically contingent responses than other response types. That is, when the mother imitates the child, the child imitates back. Although Veneziano reports qualitative differences in mother-child interactions over time, her quantitative analyses did not reveal developmental changes in maternal phonetically versus semantically contingent responses.

The pilot study which I will report on today is an extension of Veneziano's work in two respects. First, maternal response types were compared with respect to the nature of the preceding utterance, as well as over the entire session. This **micro**-analysis has revealed maternal sensitivity to changes in infant vocalization types which cannot be identified through broader analyses. Second, we have compared mother-child interactions of dyads in which the child is normally developing to those in which the child has Down syndrome. Certain differences in interaction styles and in maternal sensitivity to child prelinguistic development have become apparent.

Subjects: Three normally developing infants and five children with Down syndrome participated in this longitudinal study. The normally developing children were all 7 months of age at the beginning of the study. The children with Down syndrome ranged in age from 7 months to 23 months, with an average age of 14 months. As this was a pilot study, they could not be carefully matched for chronological or mental age or socio-economic factors, so the comparative data presented should be regarded as tentative.

Method: The dyads were videorecorded in play in a sound-treated playroom twice per month for a period of a year at the Mass. General Hospital Neurolinguistics Lab. The camera and its operator were situated outside of a

low window on one side of the playroom, so the mother and child were alone. (Note: two of the children with Down syndrome were recorded approximately once every 2-3 months; one at home and one in the lab.)

Each tape was transcribed and coded by either the principal investigator (SV) or her assistant (LM), and reviewed in toto by the other. Disagreements were resolved through discussion or (in a small number of cases) the utterance or gesture was coded as uncodable. Definitions of categories coded are given with examples below:

Child Variables: Definitions

Onset of Consonants: First session in which 20% or more of vocalizations contain oral supraglottal stop consonants.

Factors used to determine "wordhood":

1. Appropriate context.
2. Phonetic consistency.
3. Referential consistency.
4. If not based upon adult word, adult uses same form meaningfully and with similar reference.

(Note: May be imitation of adult production if child focus is appropriate.)

Maternal Response Types:

Phonetically Contingent: Mother's response reproduces segmental or prosodic characteristics of child's vocalization. (Similar to "expansion".) Examples:

1. Child: [abababa]	2. Child: [wa]
Mother: [ababa]	Mother: Is there water in there?

Semantically Contingent: Mother produces context-appropriate vocal response to child's vocalization or gesture which does **NOT** reproduce segmental or prosodic characteristics of child's vocalization. (Similar to "expatiation"; note that this is less general than other investigators' use of this term.) Examples:

1. Child: Hi.	2. Child: Block.
Mother: Is that the phone?	Mother: Put it up on top.

Noncontingent: Mother's response is irrelevant to child's vocalization, gesture, or focus of attention. Example:

Child: [wawa] (points to dog)

Mother: Oh, look at the ball.

No response: Mother does not produce a vocal response within 2 seconds of child's vocalization or gesture.

Results: The results to be reported today are those which illustrate the advantages of doing a microanalysis and of distinguishing between phonetic and semantic contingency. Differences between the two groups studied and in mother-child interaction patterns over time will be used to illustrate these points.

Veneziano's finding of no significant changes in types of contingent responding over time was replicated in this study. Mothers were consistent in their response types over a session regardless of the child's age or (pre)linguistic level. Figures 1 and 2 illustrate levels of phonetic contingency and of noncontingency for two mothers of normally developing children over the year.

However, this finding does NOT indicate that these mothers were insensitive to changes in their children's communicative abilities. When the same mothers' responses to words (as compared to other vocalizations and gestures within the same session) were calculated, they were found to be extremely phonetically contingent to their children's first words, with differences in responses to different vocalization types dropping off as words became less novel. Figures 3 and 4, in comparison to figures 1 and 2, illustrate this point. Only through the microanalysis of responses to particular vocalization types within the same session were these differences revealed.

Although mothers of children with Down syndrome, as a group, were no less responsive or contingent to their children, they were much less **phonetically** contingent (i.e., more **semantically** contingent). That is, they rarely repeated or expanded their children's vocalizations, although their responses were often appropriate to the child's focus of attention. (See [illegible].) Microanalysis revealed that some of these mothers were even more semantically contingent to their children's first consonant productions than to other vocalization types. One child, in fact, began to babble at 14 months, then ceased and began again at 18 months. His mother was 100% semantically contingent to his consonants both times. Figure 6 shows this pattern.

In summary, the phonetically versus semantically contingent distinction first crystallized by Veneziano is a useful one for discovering differences between maternal responses to different groups of children. However, its usefulness is barely revealed by superficial analyses which document maternal behavior over an entire session. Microanalysis of maternal responses to particular types of child vocalizations is more revealing.

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Figure 1

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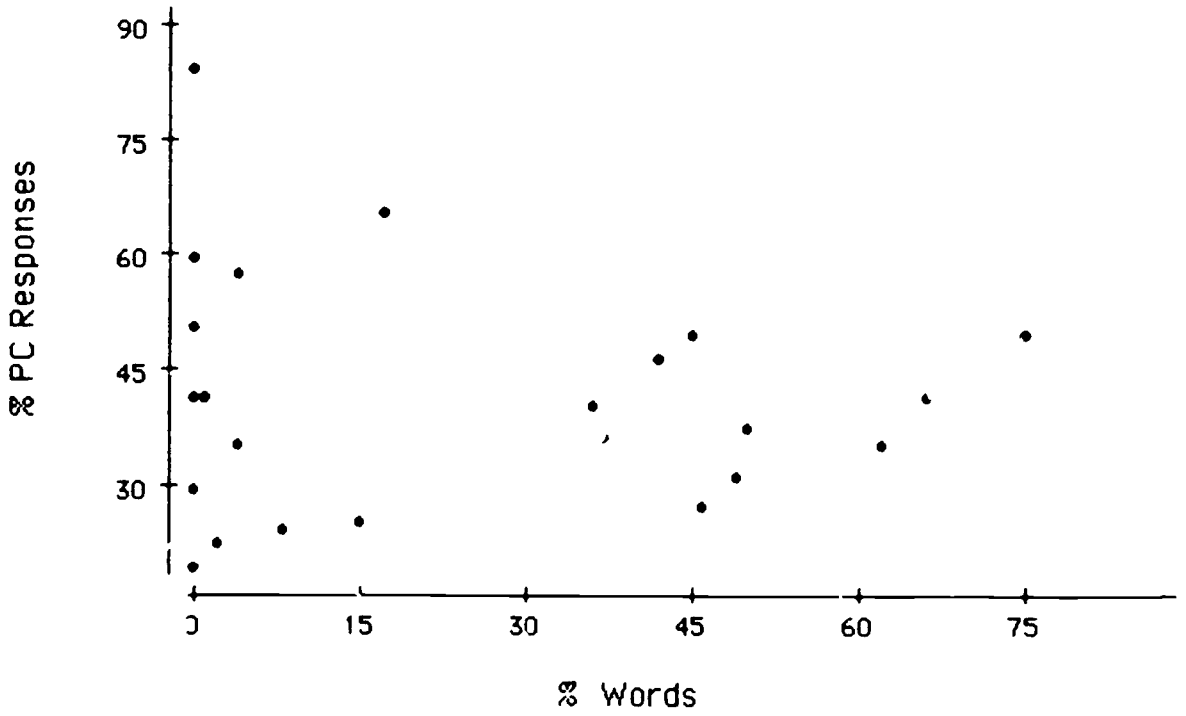
Total % Phonetically Contingent Responses
by % Words (Subjects 1&2)



r= -0 081

Figure 2

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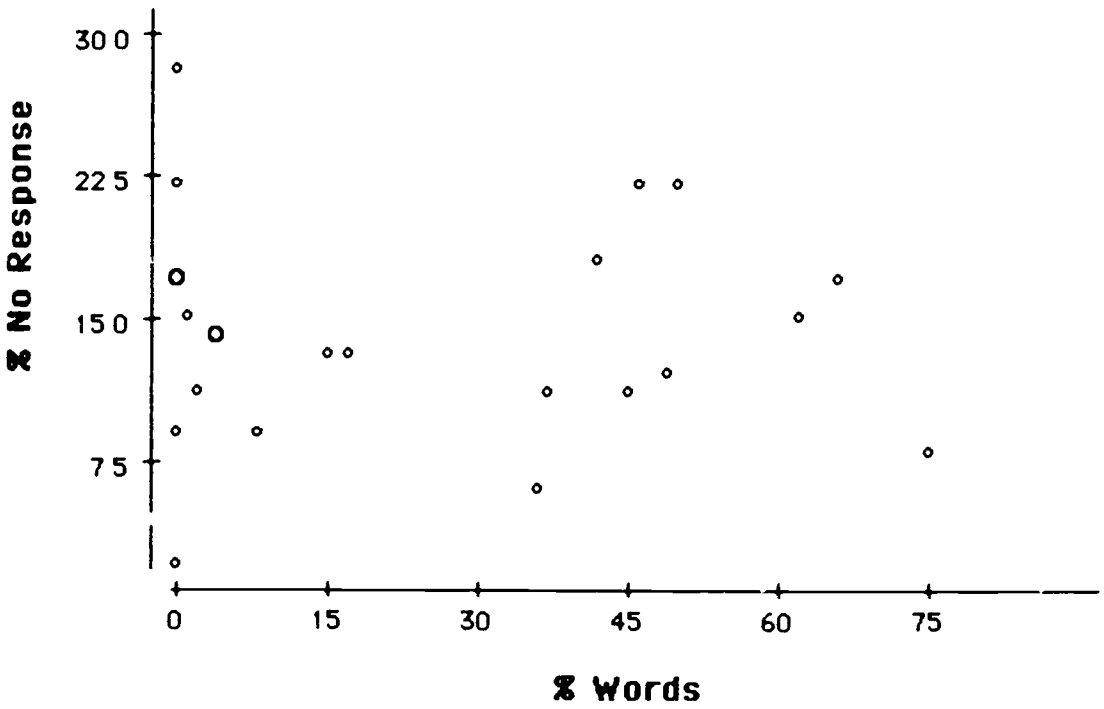
% No Response by % Words

(Subjects 1 & 2)



r=-0 018, non- gnificant

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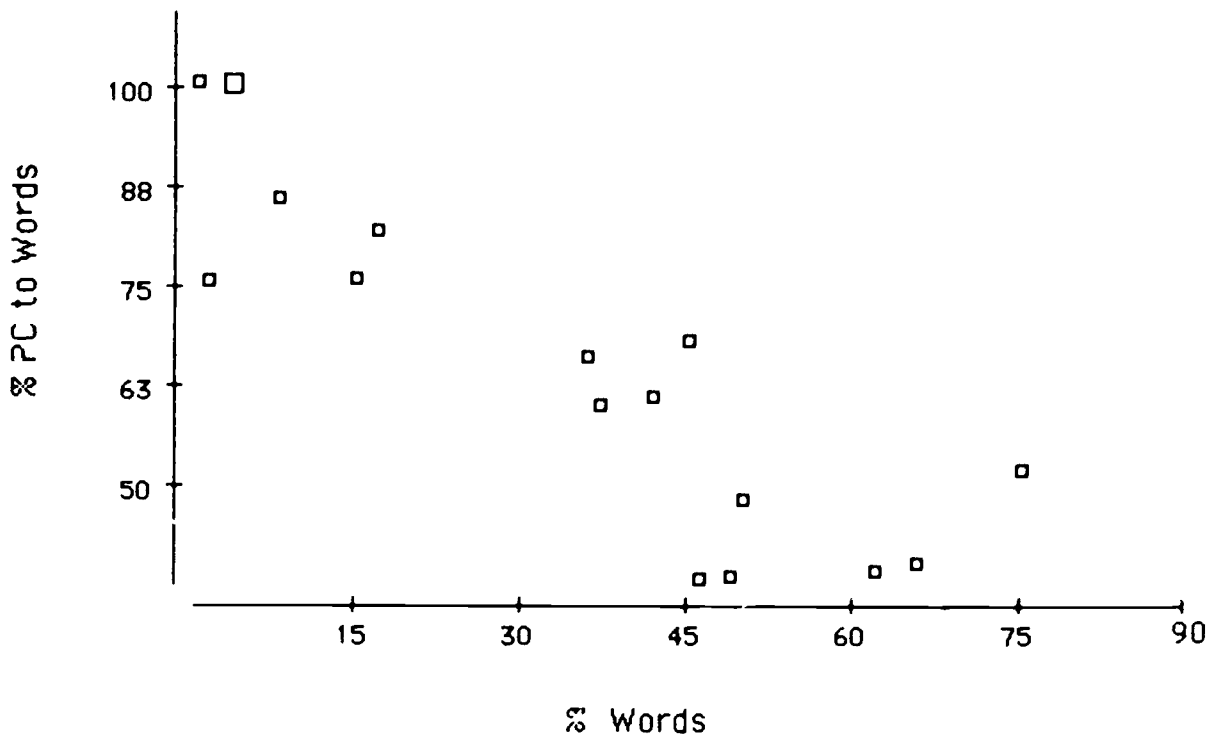
Figure 3

% Phonetice'ly Contingent Responses to Words
by % Words



r=-0 886 (Significant at p< 01)

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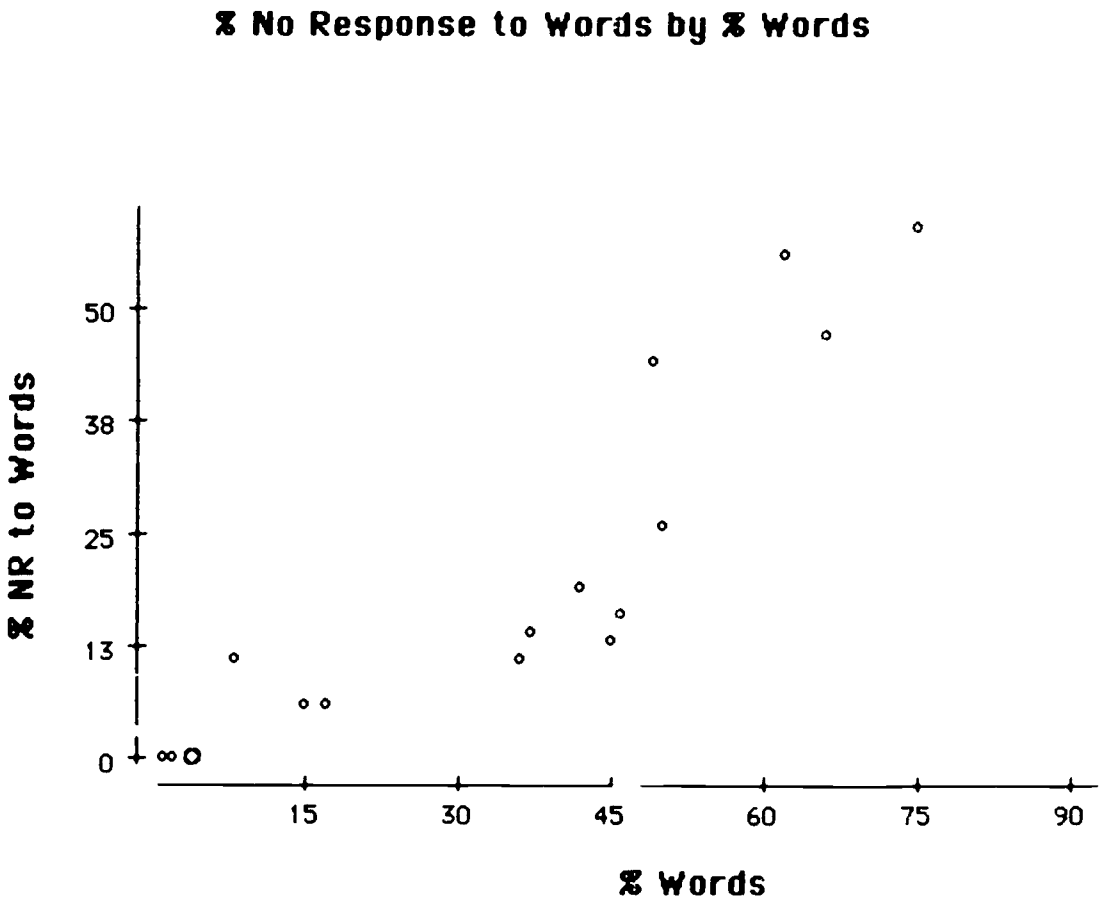
Figure 4



r=0 894, p< 01

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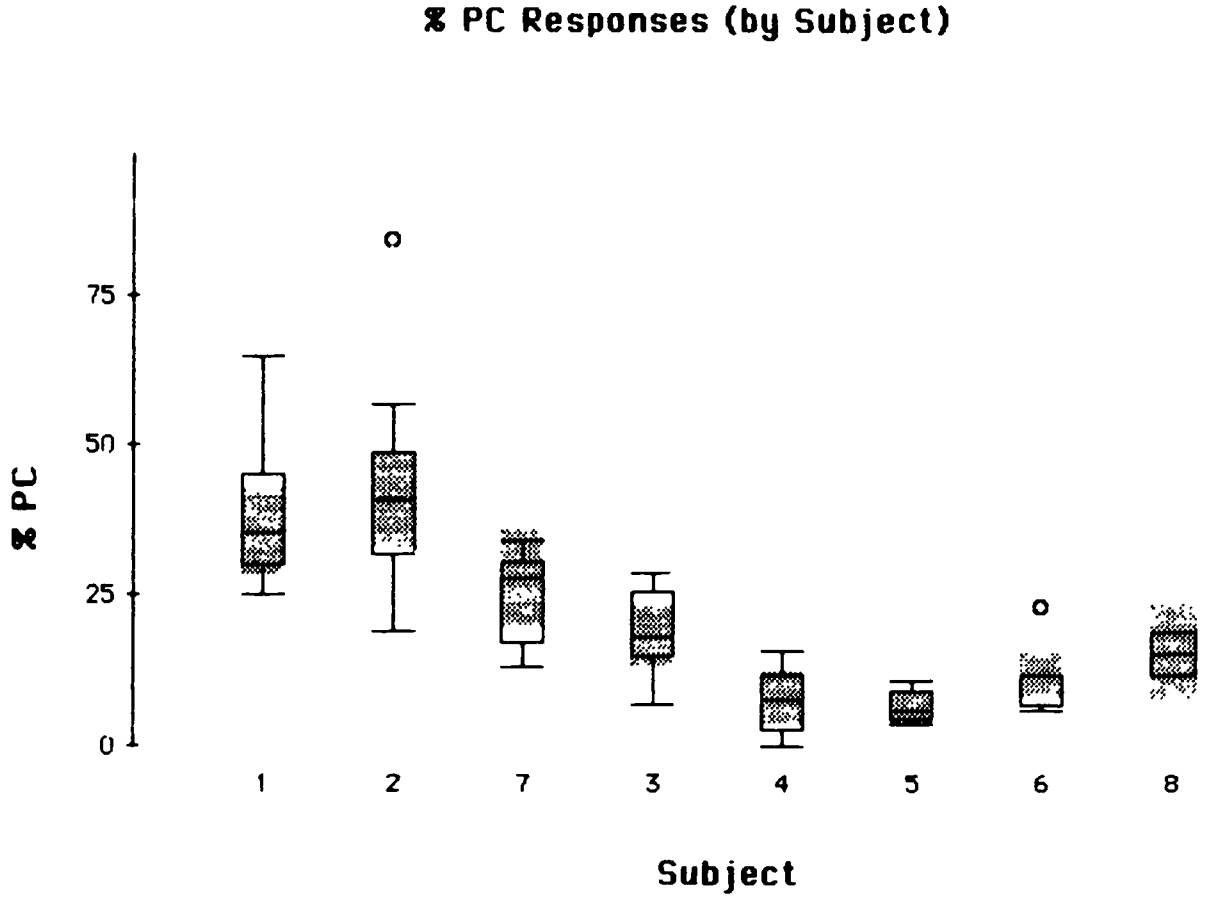
Figure 5



Note Subjects 3, 4, 5, 6, and 8 have Down syndrome

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Figure 6