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PRE-READERS' CONCEPTS OF THE ENGLISH WORD

By

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Pre-Readers exhibit concepts of the English word different from those of literate
adults. The inclusive word concept is primary: A word is what we call an
utterance and any of its parts. Pre-Readers suffer confusion between homophones
at the syllabic level, e.g., the sound of the suffix in "PUPPY" is confused with
the name of the letter "P". Conflict between implicit judgments of wordhood
(inferred from the child's counting of the number of words in an utterance) and
explicit judgments (responses to questions about whether an item is a word) vary
from high, for pre-readers, to low, for beginning readers. The justifications pre-
readers offer to support their judgments of wordhood are notable for not including
any arguments based on immediate verbal context. A concept development theory is
offered to interpret this data and their relation to learning to read.

ABSTRACT

Pre-readers exhibit concepts of the English word different from those of literate adults. The Inclusive word concept is primary: a WORD is what we call an utterance and any of its parts. Pre-readers' judgments about wordhood and justifications to support their decisions are context independent, e.g., the word 'TO' in 'TO EAT' is justified as being a word because it is the number 'TWO'. Not excluding meanings based on immediate verbal context, pre-readers suffer confusion between homophones at the syllabic level, e.g., the sound of the suffix in 'PUPPY' is confused with the name of the letter 'P'. Different experimental techniques access different criteria for word judgment. The degree of conflict between implicit judgments of wordhood (those inferred from the child's counting of the number of words in an utterance) and explicit judgments (responses to questions about whether an item is a word or not) ranges from high, for non-readers, to low, for beginning readers. The justifications pre-readers offer to support their decisions of wordhood are notable for their not including any arguments based on the immediate verbal context. These phenomena are appreciated by a Word Concept Integration Theory which describes the development of children's word concepts in passing from a profoundly idiomatic basis to a dominantly lexical basis when learning to read replaces the prosodics of speech with lexical context as the primary disambiguator in the understanding of language. The relation of these data and this theory to reading development is discussed.

INTRODUCTION -

The mentor of my undergraduate days,[1] a philosopher, spoke in a dark mood of his job being one of 'shovelling fog into a bucket'. My friend knew better, of course, though he must have his joke at Philosophy's expense; for he spoke later of education as being a matter of 'hanging around until one catches on'. I offer these two images to represent poles of thought about what the process of education is.

An adequate theory about how some knowledge is learned must have three main parts. The first necessity is a theory of the domain of that knowledge. Second is a description of the neophyte's state of relative ignorance. Finally, a learning theory must explain both how learning is possible and why it is non-trivial. Let the phonics approach to reading serve as an example. Reading is considered a process of translating a string of graphic symbols to an aural representation, which is then comprehended as all heard utterances are. The neophyte, the pre-reader, is held to be ignorant of letter-sound correspondences. Learning to read is thus a matter of learning these correspondences and the process of 'blending' sounds into words. There are two difficulties that make learning to read hard.

1. Charles Bures, Professor of Psychology and the Philosophy of Science at the California Institute of Technology 1939 - 1974.

The phonetic irregularity of English orthography is first mentioned. Secondly, the modification of sounds by each other when said together is a mighty confusion, i.e. 'blending' is not easy to understand. I do not consider this theory of learning to read entirely wrong, but I do hold it to be inadequate. For the theory is a partial one, leaving out of the learning process one critical factor: the learner as an active agent. I hope to establish a place for thinking in learning to read.

When we teach reading to five and six year old children, are we trying to stuff a lot of 'knowledge' into all those empty heads ? What's learned must be assimilated to whatever is already known. No head is empty, though the contents may differ from what we first expect. If you can not see education as implanting new 'knowledge' but must see it as modifying what is in somebody's mind by the refinement of his conceptions, where do you start ? Must you not find out what that person thinks, even if he be such a small person as a child is ? How else can you reinforce sound intuitions or highlight problems with erroneous ideas ? How else can we help a child 'catch on' to a way of understanding language we believe is very important ?

This experiment is an investigation of children's linguistic awareness - not merely with respect to which units of speech the child can manipulate - but as an inquiry into what the child thinks about the parts of what he says.

A PARADOX -

Should you tell an adult in our society that kindergarten children don't know what words are, you may expect to be met with that look of stunned disbelief reserved for supposedly serious people who have revealed themselves to be fools. 'Children talk all the time, they know the names of so many things, they inflect nouns and verbs for number and tense; how could they possibly not know what words are ? ' The experimental results of Karpova (1955), Huttenlocher (1964) and Holden and MacGinitie (1972) establish that most pre-readers definitely have a non-standard concept of the English word. We continue the probing of this paradox by approaching the same question (What is the pre-reader's concept of the English word ?) with additional experimental techniques. The contrast of results from these different approaches proves most worthwhile: some new phenomena are discovered and are appreciated in terms of a theory which brings a new understanding of children's developing linguistic awareness during the critical period when they are learning to read.

In precisely what sense is it true that children don't know what words are ? The most direct answer to this question is a description of the experimental task on which the judgment is based. The task used in my experiment, which I call the checker task, is most similar to that developed by Holden and MacGinitie: [2]

2. Children's Conception of Word Boundaries, p. 553

1. I said a sentence or a list of nouns.

2. The child repeated what I said. These two steps were iterated until the child duplicated the utterance.

3. The child repeated the utterance again, taking one checker for each 'word' he said from a line of checkers before him.

4. While the child was taking checkers, I marked the syllable boundaries of the utterance segments within which he took checkers.

Earlier studies had suggested a slow development in children's ability to isolate words from the aural stream of utterance, beginning with words rich in concrete content and gradually approaching abstract words expressing relations, i.e., function words such as articles and prepositions. The following observations from Holden and MacGinitie focus attention on their main conclusion:

"... The greater the proportion of content words in an utterance, the greater the percentage of correct segmentation.... Thus, if only content words are considered, about three fourths of the children segmented each of the utterances correctly...." [3]

3. Children's Conception of Word Boundaries, p. 553

"... Function words were more difficult to isolate than words that had more lexical meaning. The most common error made by the children in our study was compounding a function word with the following content word...." [4]

If one tries to imagine what kind of a word concept a child might have that would permit him to make the decisions reflected in these experimental results, the simplest theory might have this form:

1. Although children may not be able to articulate them, they have nearly standard concepts of the 'parts of speech'.

2. Because of their success in breaking the aural stream into content-centered clusters of sounds, we may infer that they know the names of objects and actions are words.

3. Their ability to inflect nouns and verbs for number clearly shows that children know where words end.

4. The compounding of function words with the following content words might indicate that children sense function words as a kind of contentive-preceding inflection for function, much as case endings in Latin are terminal inflections for function, e.g.,

4. Children's Conception of Word Boundaries, p. 553

for the word temple, (TEMPLUM), the genitive form,
(TEMPLI), means 'of' or 'belonging to' the temple;
the ablative form, (TEMPLO), might mean near the
temple, et cetera.

Holden and MacGinitie did not publish data on a broad enough sample
of function words for this speculation to be judged. The view
described above, which I now believe to be substantially wrong,
is the hypothesis which guided design of the twelve test utterances
of this experiment.

While running a pilot experiment of the checker task with
my daughter, Miriam, then aged 4 years and 7 months and not a reader,
I encountered a segmenting strategy mentioned only in passing in
the literature. In Karpova's experiment:

"... Some of the children at this level [older children
in the age range of 3 to 7 years] even occasionally broke
individual words into syllables...." [5]

On utterances from the examples of Holden and MacGinitie, Miriam took
one checker for every syllable she heard. Perplexed by her use of
this syllabic strategy, I pressed my daughter with examples of
bisyllabic words she kew quite well, e.g., 'PUPPY'. She maintained
that each of those utterances was two words. Reflecting that if a

5. The preschooler's realization of the lexical structure of speech,
   p. 370.

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child's conception of words is unsettled or non-standard and if he does not recognize word boundaries, I saw we should not suppose a child would believe that diminutive suffixes - or any other bound morphs - are more integral to the content morphs of their binding than closed form words occasionally associated with them. For example: in the phrase 'THE PUPPY', we should not assume all children would think '-PY' is any more intimately related to 'PUP' than is the article 'THE'. The pilot experiment with Miriam left two conclusions: we should look for effects deriving from a syllabic strategy and should extend the comparison of word decisions across a range of function words and bound morphs.

The final element entering the definition of test utterances for this experiment is the issue of whether the compounding effect noted by Holden and MacGinitie derived from the special character of function words in English or from a process of semantic based amalgamation of concepts. In Gibson and Levin (1975), we find this argument:

> "... Karpova (1955) has pre-school children count
> the number of words in a sequence of unconnected nouns,
> which they were able to do with little difficulty.
> However, if other categories of words, e.g., adjectives
> and verbs, were added to the list of nouns, children

aged 3 to 6 had difficulty counting the number of words. A list made up of various parts of speech more nearly approximates the natural language than does a list of nouns, so it may be that when the sequence has some structure younger children cannot divide it into segments...." 6

One would like to see at what point such effects become noticeable; at least, one would like to contrast a list of nouns with a simple sentence and with another more complicated one.

The twelve test utterances of TABLE I, those used in the experiment, were designed to address the issues just discussed:

1. Can one discriminate at least two different strategies pre-readers use for deciding what segments of the aural stream are words ?

2. To what extent do pre-readers consider function words and bound morphs to be integral parts of related content words ?

3. At what point across a range of gradual semantic and syntactic complication do pre-readers' word decisions begin to show non-standard conclusions ?

6. The Psychology of Reading, p. 123.

TABLE I

TEST UTTERANCES

1. TOY CAR EGGS
2. PIGEON KITTENS ELEPHANTS
3. KIDS RIDE BIKES.
4. MONKEYS EAT BANANAS.
5. BAD MEN OFTEN KICK SMALL DOGS.
6. SOME GROWN-UPS ALMOST NEVER WATCH TV.
7. THE BOYS (GIRLS) SWIM IN THE POOL.
8. A MOTHER CAN CARRY HER BABY.
9. I WANT A SIP OF SODA.
10. THE PUPPY WANTS TO EAT.
11. BOYS AND GIRLS GO SLEDDING.
12. MY BROTHER IS BIGGER THAN ME.

CHARACTERIZATION OF TEST ITEMS

monosyllabic nouns in a list

polysyllabic nouns in a list

monosyllabic noun-verb-noun sentence

polysyllabic noun-verb-noun sentence

monosyllabic words in a highly modified simple sentence
polysyllabic words in a highly modified simple sentence

FUNCTION WORDS: THE, IN

FUNCTION WORDS: A, CAN, HER

FUNCTION WORDS: (I), A, OF

FUNCTION WORDS: THE, TO, -PY

FUNCTION WORDS: AND, -ING

FUNCTION WORDS: (MY), IS, THAN, -ER (in BIGGER)

TWELVE TEST UTTERANCES OF THE EXPERIMENT

DIRECT JUDGMENTS AND JUSTIFICATIONS -

The results of this experiment divide into three broad classes: implicit judgments (inferred from the checker taking task); explicit judgments of wordhood (responses to direct queries about whether or not a test item is a word); and justifications (those arguments children adduced to support their explicit judgments). The data of the second and third classes were collected simultaneously with the checker task data.

After each child's division of each of the utterances shown in TABLE I, I asked him questions, two questions about target portions of the utterance:

1.   Is the target item a word ?

2.   How do you know that the target item is or is not a word ?

Such was the pattern of which minor variations occurred during the experiment. The following excerpts from the protocols may be taken as representative:

Ex. 1   Bob: Remember, we said "Bad men often kick small dogs." ?

Tina: Yeah.

Bob: Is 'OFTEN' a word ?

Tina: (head shake yes.)

Bob: How do you know ?

Tina: Because I used that word before.

Ex. 2 Bob: Is 'TV' one word or two words ?

Ehren: /T/ /V/ ... one word.

Bob: Some children have told me they think it's two

words. How do you know it's one word ?

Ehren: 'Cause my mother teach me how to do that... and

my mother's a teacher.

For anyone familiar with children and the frequent
inapplicability of their justifications to the decisions they
prefer, my taking their arguments seriously may seem an excess of
credulity. Contrariwise, some forty years of experiments by Piaget
and his followers establish that one should take children's
reasonings seriously as data about the way they think. For example,
no child's argument that the sound /PI/ in the context of the word
'PUPPY' is a word because it is in the alphabet would ever convince
me of the correctness of his assertion; however, the child's advancing
such a justification I take as evidence about the structure of
concepts in his mind. With that point established, let the following
argument be advanced: if it is an error to believe that a person's
articulate description of his own knowledge is the only determinant
of his behavior, it is equally an error to assume its irrelevance.
This excerpt is revealing:

Ex. 3 [after parsing utterance 8 thus:

/A MOTHER /CAN /CARRY /A BABY /.

which substitutes in error 'A' for 'HER'.]

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Bob: How about 'HER' ? Is 'HER' a word ?

Garrett: I forgot to put that in.

Bob: You did ?

Garrett: Yeah. It was five.

Bob: Oh. O.K. You think 'HER' is a word then ?

Garrett: Yes it is. My sister wouldn't be her if it
          wasn't a word.

What some children think affects what they do.

At this point, we have introduced the central phenomenon,
raised the issues involved and discussed the techniques at the core
of this experiment. Since we are investigating concepts or ideas,
and since people have ideas in their individual minds, it is
appropriate to turn attention to the subjects of the experiment.

SUBJECTS -

The children interviewed for this experiment were in the kindergarten classes of the Martin Luther King Junior Elementary School in Cambridge, Massachusetts. The interviews took place in April when all the children were six years old or nearly so.

The ten children were pre-selected by their kindergarten teachers and by me, after my participating with them in their kindergarten activities for a week. The criteria were that the children should be free of obvious complications and should not yet be good readers (several children in these classes read at first grade level, one at third grade level).

At the beginning of each interview, I asked each child a series of questions to determine his familiarity with the alphabet, letter-sound correspondences and the word 'SYLLABLE'. I also asked him how he judged his own ability to read, following which I offered the child a set of 3" x 5" cards with some words printed in capital letters thereon. These words are an informal series; they were chosen as being steeply graduated in familiarity and difficulty. The six members are: STOP, MOMMY, COW, JUMP, LUNCH, RUNNING. The intention of these questions was to permit a gross estimate of the reading development of the child. These data are important as a basis for later contrast with the experimental results.

No child recognized the word 'SYLLABLE'. Only Lynette attempted to explain it; she said, of 'SYLLABLE' : "He sails. He sails in a boat." . Most children sang the alphabet when I asked them if they knew all the letters. They seemed to have a good command of the basic letter-sound correspondences (with exceptions which will be noted individually). The data of the informal series follows. My interpretation is presented summarily at the end.

DEBBIE: When asked if she knew how to read, Debbie replied, "No... only my name." . She tried then to read some words. For 'STOP', she said "After". For 'COW', she replied, 'Daddy ?'. She did not attempt to read the other words. Her command of the letter-sound correspondences was poor.

EHREN: He said that he could not read but that his mother, a teacher in another school, was teaching him. He did not read the words 'STOP' and 'MOMMY' when shown him. Ehren knew a few of the letter sounds but could not pronounce the sound of the letter 'B' and claimed that the letter 'E' made the sound "Ehren".

GARRETT: Garrett claimed to be able to read one book, "Paul Revere Rides Under The Midnight Moon," and allowed that he could read that book only because it was one of pictures and very few words. He was able to read 'STOP' but failed to read the remainder of the informal series. Garrett's

competence was not shown by the informal test. My judgment that he was a beginning reader was confirmed two weeks after this interview when I observed him in kindergarten reading to his mother, hesitantly to be sure, but reading nonetheless.

GONZALO: Gonzalo said that he couldn't read, "not even a little bit". He did, however, read the word 'STOP' without hesitation.

KEVIN: Kevin claimed that he knew how to read and that his mother was helping him learn. When I asked which words he could read, he replied "Easy ones.". Kevin was unable to read any of the test words in the informal series. He suffered from an obtrusive letter sounding strategy; he sounded every letter individually and read no words.

LAURI: Lauri denied that she knew how to read. From the informal series she read 'STOP' and 'COW'. Of the former, her recognition was positive. For the latter word it was not so. My impression was that she succeeded in blending the sounds represented by the letters but failed to recognize the whole word which she had said. Her method for guessing the word 'JUMP' and 'RUNNING' showed her constructing a monosyllabic word from the letters at the beginning and ending of the words; her responses were, respectively, 'GYP' and 'RUG'. These observations made me

suspect tha Lauri was not a beginning reader at the time of the test, although she appeared to be on the verge of a conceptual breakthrough.

LOREN: Loren said that he knew how to read "Some things." and exemplified his reading vocabulary with 'EXIT'. Of the informal series, Loren was able to read only 'STOP'. For the word 'JUMP' he guessed at "Juggle." For 'MOMMY', he guessed "Yell." His willingness to guess first on the basis of the initial letter and then on the final letter incline me strongly to doubt his ability to read.

LYNETTE: Lynette claimed that she could read "a little bit", then proceeded to read correctly with obvious recognition all the words of the informal series except 'RUNNING'. Her mother is teaching her to read.

TINA: Though admitting that she did not know how to read, Tina informed me with pride "But my Mommy knows how to read." She was unable to read any of the words in the informal series.

TRACEY: Tracey said she could read "A little bit." and that her sister (8 years old) was teaching her to read. She read 'STOP' and 'COW' from the informal series. In contrast to Lauri, she seemed to recognize 'COW' when she read it.

Of the four children who claimed to be beginning readers, two had their opinions definitely confirmed: Lynette showed her ability in the informal series; Garrett by reading in class at school. I judged Kevin unable to read because he focussed all his effort on sounding out letters and never produced a blended word, nor was he able to recognize those words he was spelling phonetically. Kevin apparently believed that his letter sounding was reading the words. This suggests in his case a basic confusion between letters and words. Tracey's capability was neither shown nor contradicted by the data; she should be tentatively be considered a beginning reader, but the uncertainty in that class-ification must be admitted. She will be placed in the category 'ready to read' by herself. Of the remaining six children, Lauri seemed to be most advanced. The conclusion is in doubt, though, because her success at blending sounds to forms the word 'COW' did not lead to her recognizing the word she had said. The children's characterization as readers is summarized in TABLE II. This TABLE is important as a basis from which the characterization of each child's skill will be progressively elaborated.

TABLE II

TEN CHILDREN GROUPED BY READING DEVELOPMENT

	Basis of my Judgment	Child's Response to 'Can you read?'
I. Beginning readers:		
Lynette	performance on the informal test.	'a little bit'.
Garrett	observation in kindergarten	'one book.'
II. Ready to read:		
Tracey	able to read 'STOP' and 'COW'; no contraindications.	'a little'
III. Non-readers:		
Lauri	blending without recognition.	'No.'
Debbie	inability to read any words; poor letter-sound correspondence.	'only my name'
Ehren	inability to read any words.	'No.'
Kevin	inability to read any words; obtrusive letter sounding.	'Easy words'.
Gonzalo	recognized 'STOP' but no other words.	'No. Not even a little bit.'
Loren	guessing 'YELL' for 'MOMMY'	'Somethings.'
Tina	inability to read any words.	'No.'

SECTION ONE: CHECKER TAKING

AN INITIAL RESULT: A VARYING FUNCTION WORD EFFECT

The question generating the experiment was: do pre-readers
judge function words to be words or do they consider them to be
merely modifiers of the meaning of contentives ?   A primary result,
which confirms the opinion of Holden and MacGinitie, is that
function words are not granted the same status as content words.
Specifically, there are occasional examples where two content words
are   joined into a unit judged to be a word (e.g., Tina judged
'BOYS AND GIRLS' to be one word) but there are a multitude of
examples where function words are joined with content words to
form a unit identified as a word.

Going beyond the opinion and data published by Holden and
MacGinitie, the data of TABLE III show a variation, by function word
and bound morph, of the frequency with which each was judged to be a
word.   Notice that, although fifteen points of data do not make a
continuum, there is no clear discrimination between those items
classed as function words in English and the three bound morphs,
'-ING', '-ER' and '-FY' (indeed, '-ING', 'OF' and 'A' were judged
to be words equally frequently.   This fact may be taken to support
the opinion of Brown (1973) [7] that function words should be thought
of as bundles of features which in combination elevate them

7. A First Language, pp. 81 - 88.

TABLE III

JUDGMENTS OF TEN CHILDREN ON THE CHECKER TASK

RANK	ITEM	DESCRIPTION	TIMES IN TESTS	PERFORMED INSTANCES	JUDGED A WORD	RATIO
1	MY	1st person pronoun	1	9	7	.778
2	IN	preposition	1	1 0	7	.700
3	I	1st person pronoun	1	9	6	.666
3	IS	copula	1	9	6	.666
4	CAN	modal auxiliary	1	10	6	.600
4	TO	infinitival prep.	1	10	6	.600
5	AND	conjunction	1	9	5	.556
5	THAN	subordinating conj.	1	9	5	.556
6	THE	definite article	3	28	14	.500
6	HER	3rd person pronoun	1	10	5	.500
7	OF	preposition	1	9	4	.444
7	-ING	participial suffix	1	9	4	.444
8	A	indefinite article	2	19	8	.421
9	-ER	comparative suffix	1	9	2	.222
10	-PY	diminutive suffix	1	10	2	.200

CONTEXTS:

7. THE BOYS SWIM IN THE POOL.
8. A MOTHER CAN CARRY HER BABY.
9. I WANT A SIP OF SODA.
10. THE PUPPY WANTS TO EAT.
11. BOYS AND GIRLS GO SLEDDING.
12. MY BROTHER IS BIGGER THAN ME.

differentially to the status of words. One direct extension of this aspect of the experiment would be the gathering of data about word decisions across a broad sample of pre-readers. An ensuing analysis might permit the determination of which features of the function words are most salient for word decisions in the checker task.

Let us name children's non-recognition of function words as words the functor effect ("functor" is a term equivalent to "function word"). To merely note that an effect exists poses a puzzle. We should examine the manifestation of the effect so that we may better understand what children are doing and thinking when they exhibit the behavior we now call the functor effect.

NO EVIDENCE OF SEMANTIC FUSION -

The functor effect implies that two or more words are joined together into a single unit a child judges to be a word. Let any such occurrence be called a 'NON-STANDARD JUNCTURE'. The extent of the expression of the functor effect may then be measured by counting the incidences of non-standard juncture in the children's test performance. For example, if a child parsed utterance 5 thus:

/BAD MEN /OFTEN KICK / SMALL DOGS /.

we would describe the performance as showing three non-standard junctures, i.e., BAD-MEN, OFTEN-KICK, and SMALL-DOGS, wherein the dash indicates the non-standard juncture.

My daughter's performance on a pilot test warned us to be wary of confounding consequences of polysyllabicity with those of the functor effect. Let us examine separately, then, series of monosyllabic and polysyllabic utterances. Our intention is to discover that point in the increasing complication of the utterance at which the functor effect reveals itself with consistency. Gibson and Levin suggested [8] that the effect derived from a meaning-driven fusion of ideas that made separation of the constituent words difficult; for example, the phrase 'RED APPLE' might be hard to identify as two words because the component words fused into a single concept in the mind. Call this putative process 'SEMANTIC FUSION'. On the contrary, the main effect, as noted by Holden and MacGinitie, was one of failing

8. The Psychology of Reading, p. 123.

to separate function words from content words in their immediate neighborhood. [9]

TABLE IV contrasts the parsings of ten children on four monosyllabic utterances. It shows examples of the functor effect to be vanishingly rare for noun lists, simple sentences and highly modified simple sentences. Contrast the data for utterance 7. The functor effect is very clear, for of 49 possible non-standard junctures 14 (or 29 %) have occurred. Three of six words in utterance 7 are function words; the preceding utterances were all composed of content words only. The functor effect appears, evidently, when the elements of an utterance are elaborated with function words but not when they are elaborated with content rich modifiers.

Comparable data for utterances containing polysyllabic words are exhibited in TABLE V. The data from the polysyllabic utterances are sufficiently similar for the comment of the preceding paragraph to apply. For children as sophisticated as those in kindergarten, the functor effect seems limited to failing to judge function words as words. There appears no basis for invoking semantic fusion to explain the phenomenon. There is no magic in the structure of a simple sentence. A three word sentence has as many words as a three word list. There is no magic in the structure adjective-noun or adverb-verb: if you demand that children reproduce

9. Children's Conceptions of Word Boundaries, p. 553

TABLE IV

NON-STANDARD JUNCTURES IN FOUR MONOSYLLABIC UTTERANCES

UTTERANCES:

1. TOYS CAR EGGS
3. KIDS RIDE BIKES.
5. BAD MEN OFTEN KICK SMALL DOGS.
7. THE BOYS SWIM IN THE POOL.

Utterance	NUMBER OF WORDS	POSSIBLE NON-STANDARD JUNCTURES	NUMBER OF CHILDREN	MAXIMUM NON-STANDARD JUNCTURES	ACTUAL NON-STANDARD JUNCTURES	RATIO
1	3	2	10	20	0	.0
3	3	2	10	20	0	.0
5	6	5	9	45	2	.045
7	6	5	10	49 *	14	.286

* 'THE' omitted in one child's repetition.

TABLE V

NON-STANDARD JUNCTURES IN FOUR POLYSYLLABIC UTTERANCES

UTTERANCES:

2. PIGEON KITTENS ELEPHANTS
4. MONKEYS EAT BANANAS.
6. SOME GROWN-UPS ALMOST NEVER WATCH TV.
8. A MOTHER CAN CARRY HER BABY.

Utterance	NUMBER OF WORDS	POSSIBLE NON-STANDARD JUNCTURES	NUMBER OF CHILDREN	MAXIMUM NON-STANDARD JUNCTURES	ACTUAL NON-STANDARD JUNCTURES	RATIO
2	3	2	10	20	0	.0
4	3	2	10	20	0	.0
6	6	5	10	47 *	1	.021
8	6	5	10	50	16	.320

* 'ALMOST' omitted three times in children's repetition.

the content items of an utterance, they can count them. The
subordinate elements of embedded structure are not counted; that
is the phenomenon that needs explaining.

AVERAGED DATA VERSUS CLASSIFIABLE STRATEGIES -

With functor effects of the same order in both monosyllabic and polysyllabic utterances, one must ask whether or not there be any influence of a syllable counting propensity. For that question's answer, one must examine the 'NON-STANDARD DIVISIONS' of an utterance. Let such be the name of any case where a word is broken into constituents and each part is counted as a word. For example, if a child parses utterance 4 thus:

/MON /KEYS /EAT /BA /NA /NAS /.

we would describe the performance as showing three non-standard divisions, i.e., MON/KEYS. BA/NA/NAS wherein the slash indicates the non-standard division.

Utterances 1 through 6 were included in the experiment to test for the presence of a syllabic counting strategy. The results of ten children's parsing those utterances is shown in TABLE VI. The main conclusion one can draw from examining the data in that TABLE is that appears to make no sense. For example, in utterance 1, where no non-standard divisions should be possible, two have occurred; in utterance 2, where as many as 40 might have occurred, none did. Making sense of the results of these parsings clearly requires abandoning examination of the massed or averaged data for consideration of what the individual children were doing when they performed the tasks. We must examine, case by case, these non= standard divisions to see of what they consist.

TABLE VI

NON-STANDARD DIVISIONS IN SIX UTTERANCES

UTTERANCES:

1. TOYS CAR EGGS
2. PIGEON KITTENS ELEPHANTS
3. KIDS RIDE BIKES.
4. MONKEYS EAT BANANAS.
5. BAD MEN OFTEN KICK SMALL DOGS.
6.. SOME GROWN-UPS ALMOST NEVER WATCH TV.

Utter-ances	NUMBER OF WORDS	NUMBER OF SYLLABLES	POSSIBLE NON-STANDARD DIVISIONS	NUMBER OF CHILDREN	MAXIMUM NON-STANDARD DIVISIONS	ACTUAL NON-STANDARD DIVISIONS
1	3	3	0	10	0	2
2	3	7	4	10	40	0
3	3	3	0	10	0	1
4	3	6	3	10	30	6
5	6	7	1	9	9	2
6	6	10	4	10	40	11

The child who contributed both non-standard divisions for
utterance 1 (the impossible ones) was Gonzalo. His parsing of these
six utterances is shown in TABLE VII. Notice that Gonzalo broke the
word 'CAR' into two syllables and counted each as a word; he did the
same for 'EGGS'. Such a procedure I call syllablizing the letters
(or the phonemes, whichever may be the actual basis). Gonzalo was
not the only child who did this. Further, you will note that of the
22 non-standard divisions of utterances 1 through 6, Gonzalo alone
contributed 10.

In utterance 4, the first showing non-standard divisions
derived from children other than Gonzalo, three other children
divided 'BANANAS' thus: /BA /NANAS /. The two non-standard divisions
of utterance 5 are Tina's: /OFT /EN /; and /DOG /S /. The eleven
non-standard divisions of utterance 6 include three for Gonzalo
(/GROWN /UPS /.; /AL /MOST /.; /T /V /.), five other simple divisions
of "TV" as /T /V /, and Tina's response, counting four words in
/T /V /E /E /. The conclusion I derive from this examination is that
one must examine the detail data of the experiment, that describing
the data as a massed effect obscures what is actually going on; the
responses of the children appear so idiosyncratic that one must
examine the performance of each and only rebuild generalities on the
basis of understanding what each child is doing.

TABLE VII

GONZALO'S PARSING OF SIX UTTERANCES

UTTERANCES:

1. TOY CAR EGGS
2. PIGEON KITTENS ELEPHANTS
3. KIDS RIDE BIKES.
4. MONKEYS EAT BANANAS.
5. BAD MEN OFTEN KICK SMALL DOGS.
6. SOME GROWN-UPS ALMOST NEVER WATCH TV.

JUDGMENTS INFERRED FROM CHECKER TAKING:

Items between slashes were judged to be words.

	Count of items
1. / TOY / C / AR / EGG / S /.	5
2. / PIGEON / KITTENS / ELEPHANTS /.	3
3. / KIDS / RIDE / BIKE / S /.	4
4. / MON / KEYS / EAT / BA / NA / NAS /.	6
5. / BAD / MEN / OFTEN / KICK / BAD / DOG / S /.	7
6. / SOME / GROWN / UPS / AL / MOST / NEVER / WATCH / T / V/.	9

'BAD' is underlined because Gonzalo substituted it for 'SMALL'.

SEPARATING DIFFERENT STRATEGIES -

Lest I have suggested an impossible task with my last
comment, let me show immediately a contrast of two children doing
different things in the same task but with each operating consistently.
TABLE VIII contrasts the performances of Lauri and Kevin on the
checker task. Each seems to follow his own rules of deciding what
is a word with enough regularity that we can say the rules are
consistently applied, albeit imperfectly applied. Lauri shows a
prime example of what I call the 'PHRASAL STRATEGY'; she segments
an utterance into noun and verb phrases and identifies each as a
word. Kevin exemplifies the 'SYLLABIC STRATEGY'. Thus, /BA /BY /,
and /PUP /PY /, and /SO /DA / are each two words. There are
exceptions in Kevin's case, such as 'BROTHER', 'MOTHER' and 'CARRY'.
Notwithstanding, the strategy he employs is sufficiently different
from the decision rules Lauri exhibits that the distinction should
be noted and marked by a different name. The conclusion that we
must look beneath the averaged data and the evidence that uniformities
of behavior exist both lead us to examine the detail decisions for
each child. Let us proceed to that task.

With the quantity of data represented by many decisions by
ten subjects, there is a problem of presentation: how can one show
the data in a sufficiently restricted compass that it may be grasped
as a whole ? TABLE IX attempts that task by recording each child's

TABLE VIII

LAURI'S CHECKER TAKING:

	WORDS
/THE GIRLS / SWIM / IN THE POOL/.	3
/A MOTHER / CAN CARRY / HER BABY /.	3
/I WANT / A SIP / OF SODA /.	3
/THE PUPPY / WANTS / TO EAT /.	3
/BOYS / AND GIRLS / GO SLEDDING /.	3
/MY /BROTHER /IS BIGGER /THAN ME /.	4

KEVIN'S CHECKER TAKING:

	WORDS
/THE BOYS / SWIM / IN / A / POOL /.	5
/ A / MOTHER / CAN / CARRY / HER / BA / BY/.	7
/I / WANT / A / SIP / OF / SO / DA /.	7
/THE / PUP / PY / WANTS / TO / EAT /.	6
/BOYS /AND /GIRLS /GO /SLED /DING /.	6
/MY /BROTHER /IS /BIG /GER /THAN /ME /.	7

TWO DIFFERENT WAYS OF TAKING CHECKERS

deviation from the standard decisions that would be made by an English literate adult. The table exhibits non-standard junctures and non-standard divisions made by each child on utterances 7 through 12. The children are listed in order of increasing non-standard junctures (through Debbie) and then by increasing non-standard divisions. Each child's performance in the checker taking task for utterances 7 through 12 may be reconstructed from the detail data of TABLE IX by superposing the variations of the detail data upon the standard parsing represented by the normal text above the data. For example, Garrett decided /SLED /DING / was two words and THE-BOYS and A-MOTHER were single words; otherwise his performance was precisely the standard.

The data of TABLE IX divide into three basic patterns and intermediate cases. Loren, Lauri and Debbie constitute a class, the PHRASAL class. They exemplify the phrasal strategy in an extreme form unalloyed by any syllabic strategy. Kevin and Gonzalo both exhibit the syllabic strategy and form that class; indeed, Gonzalo is as extreme an example of a child with such a decision rule as one could imagine (Gonzalo's performance on utterance 9, omitted here, will be discussed subsequently). The decisions of these two classes are clearly non-standard; there is a standard class whose prime exemplars are Lynette and Garrett.

What does one make of Tracey, Ehren and Tina ?

TABLE IX

NON-STANDARD JUDGMENTS BY CHILD FOR SIX UTTERANCES

UTTERANCES:

7. THE BOYS (GIRLS) SWIM IN THE POOL.
8. A MOTHER CAN CARRY HER BABY.
9. I WANT A SIP OF SODA.
10. THE PUPPY WANTS TO EAT.
11. BOYS AND GIRLS GO SLEDDING.
12. MY BROTHER IS BIGGER THAN ME.

| CHILD | NON-STANDARD | | UTTER- | DETAIL DATA |
	JUNCTURES	DIVISIONS	ANCES	
LYNETTE	1	0	7-12	SIP-OF
GARRETT	2	1	7-12	THE-BOYS; A-MOTHER; SLED/DING.
TRACEY	4	0	7-12	THE-GIRLS; THE-POOL; A-MOTHER; SIP-OF.
EHREN	5	0	7-10	A-MOTHER, HER-BABY; WANT-A; THE-PUPPY, TO-EAT.
LOREN	13	0	7-12	THE-BOYS, IN-THE-POOL; A-MOTHER, CAN-CARRY, HER-BABY; I-WANT-A, OF-SODA; THE-PUPPY, TO-EAT; AND-GIRLS, THAN-ME.
LAURI	15	0	7-12	THE-GIRLS, IN-THE-POOL; A-MOTHER, CAN-CARRY, HER-BABY; I-WANT, A-SIP, OF-SODA; THE-PUPPY, TO-EAT; AND-GIRLS, GO-SLEDDING; IS-BIGGER, THAN-ME.
DEBBIE	15	0	7-12	THE-GIRLS, IN-THE-POOL; A-MOTHER, CAN-CARRY, HER-BABY; I-WANT, A-SIP, OF-SODA; THE-PUPPY, TO-EAT; AND-GIRLS; MY-BROTHER, IS-BIGGER, THAN-ME.
TINA	6	3	7-12	A-MOTHER, CAN-CARRY, BA/BY; EA/T; BOYS-AND-GIRLS, SLED/DING; MY-BROTHER, IS-BIGGER.
KEVIN	1	5	7-12	THE-BOYS; BA/BY; SO/DA; PUP/PY; SLED/DING; BIG/GER.
GONZALO	0	8	7-8, 10-12	PO/OL; CAR/RY, BA/BY; PUP/PY, EA/T; SLED/DING; BROTH/ER, BIG/GER.
MAXIMUMS	17	7	7-12	the count of junctures between all words in simple phrases; divisions of all bisyllabic words ('POOL' not counted, nor possible phoneme segmentations).

N.B.: Junctures are indicated by a dash. Divisions are indicated by a slash.

I characterize Tracey's checker taking as being near standard but showing a definite phrasal residue. By this I suggest that earlier in her development Tracey would have been a member of the phrasal class. Because Ehren chose not to parse utterances 11 and 12, the data are incomplete and inconclusive. Given the number of non-standard junctures he showed on four of six utterances, I incline to class his performance as phrasal rather than as near-standard.

Tina's strategies are clearly mixed and her case deserves careful consideration for that reason. My suspicion is that she was in a morass of confusions, that she had both syllabic and phrasal strategies available to her as competing theories of what to do, but that she was committed to neither and vacillated between them. The unique facts on which I base this impression are these. During the training for the checker task, when I read Tina the two practice utterances, for each of them she took one checker (a confusion of the concepts sentence and word or a misunderstanding of the task; I believed it to be the latter case at that time). I intervened to show her a second time my checker taking for the exemple utterance "Monkeys live in the zoo.". My taking five checkers for that utterance was clear proof that I did not consider a complete utterance to be a single word. This intervention and conflict may have unbalanced Tina's initial concept of word. A second fact is that Tina was inclined to split phonemes (or letters) off syllables, syllabify them and call them words; this process occurred three

times, with 'DOGS', 'TV' and 'EAT' (/I/.../TUH/). The third fact is
that two sentences show a phrasal strategy initially and a syllabic
strategy finally (as though Tina started with a phrasal strategy,
found her conclusion suspect, and switched to syllable counting
so that her answer would be some number greater than three). For
example: /A-MOTHER /CAN-CARRY /HER /BA /BY /; /BOYS-AND-GIRLS /GO
/SLED /DING /. One might speculate, then, that Tina was the most
naïve of the children with respect to her concept of the English
word. Each of the other children with a non-standard concept was
committed to a theory, albeit an inadequate one, which he consistently
applied.

I take these data to show that different children have
different ideas and approach the checker task with different
strategies. This conclusion indicates that we should reformulate
the data of TABLE II (TEN CHILDREN GROUPED BY READING DEVELOPMENT)
as is done in TABLE X to reflect the different strategies the
children applied on the checker task. You will observe from
TABLE X what I now draw as a general conclusion: children judged
to be readers or reading ready exhibited a near-standard word
decision strategy of the checker taking task; children who were
not readers exhibited a word decision strategy that was phrasal
(most common), syllabic (not rare) or a mixture of the two (a
single case). Different non-readers have different ideas about
what words are.

TABLE X

MODIFIED GROUPING OF TEN CHILDREN BY READING DEVELOPMENT

GROUP	CHILD	PARSING STRATEGY
I. Beginning Readers:		
	LYNETTE	STANDARD
	GARRETT	STANDARD
II. Ready to Read:		
	TRACEY	NEAR-STANDARD WITH PHRASAL RESIDUE
III. NON-READERS:		
A.	LAURI	PHRASAL
	DEBBIE	PHRASAL
	EHREN	PHRASAL
	LOREN	PHRASAL
B.	TINA	MIXED WITH PHRASAL DOMINANT
C.	KEVIN	SYLLABIC
	GONZALO	SYLLABIC

REFINING THE INITIAL RESULT -

Reflect now. Doesn't our conclusion about the existence of syllabic strategies indicate that the formulation of the results for the functor effect was pre-mature ? If Kevin and Gonzalo usually take a checker for each syllable, identifying the syllable with the word, does not the presence of their judgments dilute the results shown in TABLE III (JUDGMENTS OF TEN CHILDREN ON THE CHECKER TASK) ? That question is answered by comparing the data of TABLE XI (JUDGMENTS OF EIGHT CHILDREN ON THE CHECKER TASK) with those of TABLE III. There is no really striking difference. 'THE' switches rank with 'AND' and 'THAN'; '-ING' switches rank with 'A'. In both cases the test items cluster still in the same area. More striking is that with excision of data for those exhibiting the syllabic strategy, there is no judgment that either '-ER' or '-PY' is a word. This fact weakens the former conclusion that there is no clear distinction between those items classed as function words in English and the three bound morphs, '-ING', '-ER', and '-PY'. Because the phrasal strategy seems to represent the dominant strategy, TABLE XI will be used as the basis of subsequent comparisons even though the syllabic class (2 of 10) constitutes a significant minority.

TABLE XI

JUDGMENTS OF EIGHT CHILDREN ON THE CHECKER TASK

RANK	ITEM	DESCRIPTION	TIMES IN TESTS	PERFORMED INSTANCES	JUDGED A WORD	RATIO
1	MY	1st person pronoun	1	7	5	.715
2	I	1st person pronoun	1	8	5	.625
2	IN	preposition	1	8	5	.625
3	IS	copula	1	7	4	.572
4	CAN	modal auxiliary	1	8	4	.500
4	TO	infinitival prep.	1	8	4	.500
5	THE	definite article	3	23	10	.435
6	AND	conjunction	1	7	3	.428
6	THAN	subordinating conj.	1	7	3	.428
7	HER	3rd person pronoun	1	8	3	.375
7	OF	preposition	1	8	3	.375
8	A	indefinite article	2	16	5	.320
9	-ING	participial suffix	1	7	2	.286
10	-ER	comparative suffix	1	7	0	.0
10	-PY	diminutive suffix	1	8	0	.0

UTTERANCES:

7. THE BOYS SWIM IN THE POOL.
8. A MOTHER CAN CARRY HER BABY.
9. I WANT A SIP OF SODA.
10. THE PUPPY WANTS TO EAT.
11. BOYS AND GIRLS GO SLEDDING.
12. MY BROTHER IS BIGGER THAN ME.

CHECKER TAKING SECTION SUMMARY -

From the discussion of results offered so far we find
these major conclusions:

1.   There is a robust phenomenon which I have called the
      functor effect. Its specific nature for English
      speaking children in kindergarten is that they
      do not consider function words to be words.

2.   The frequency with which specific function words and
      bound morphs are judged words varies with some features
      obtaining to them; it is not convincingly clear from
      these data what those features might be.

3.   The checker taking data imply that individual children
      apply different decision rules in deciding what parts of
      an utterance are to be considered words. The three basic
      patterns appearing in this sample have been characterized
      as the standard, phrasal and syllabic strategies; they
      were represented by 3, 5, and 2 children respectively.

We have two other kinds of data to examine bearing on the issue of what
children think about words. Both cover the same domain as the checker
taking data, the same test items and the same contexts of utterance.
Let us now proceed to the second kind of data, direct judgments of
the wordhood of the twelve test items.

SECTION TWO: DIRECT JUDGMENTS

IMPLICIT AND EXPLICIT JUDGMENT CONFLICTS -

Does children's behavior on the checker task show what
they think about words ? If we ask them what they think and their
replies are coherent with their checker taking, we can conclude the
answer to the question is "yes".

The direct judgment data are not coherent with the checker
taking data. The functor effect was one wherein words were not
judged to be words. TABLE XII contrasts summaries of EXPLICIT
judgments (responses to direct queries) with IMPLICIT judgments
(those inferred from checker taking data). The frequency with which
the test items were judged to be words under direct questioning
was far greater than in the checker task. Under implicit judgment
(checker taking), the test items were judged words on the average
36 % of the time; under explicit judgment, the average was 64 %.
This result was entirely unexpected.

Beyond an increase in the average frequency of classifying
items as words, the rank ordering of the items changed considerably.
The indefinite article leapt from from a rank of six under implicit
judgment to a rank of two under explicit judgment. Similarly, the
bound morphs '-ER' and '-PY' moved from eighth (and last) position
where neither was judged a word in checker taking to fifth and fourth
ranks respectively when the children were directly queried. These

TABLE XII

CONTRAST OF EXPLICIT AND IMPLICIT WORD JUDGMENTS

RANK	TEST ITEM	PERFORMED INSTANCES	JUDGED A WORD	RATIO	QUERIES	JUDGED A WORD	RATIO	QUERY RANK
1.	IN	8	5	.625	7	7	1.	1
2	CAN	8	4	.500	7	5	.714	3
2	TO	8	4	.500	6	6	1.	1
3	THE	23	10	.435	8	4	.500	7
4	AND	7	3	.428	7	4	.572	6
4	THAN	7	3	.428	6	3	.500	7
5	HER	8	3	.375	7	5	.714	3
5	OF	8	3	.375	6	3	.500	7
6	A	16	5	.320	6	5	.833	2
7	-ING	7	2	.286	7	1	.143	8
8	-ER	7	0	.0	5	3	.600	5
8	-PY	7	0	.0	6	4	.667	4
	RATIO AVERAGES			.36			.64	

LISTING BY IMPLICIT RANK

1.   IN
2.   CAN   TO
3.   THE
4.   AND   THAN
5.   HER   OF
6.   A
7.   -ING
8.   -PY   -ER

LISTING BY EXPLICIT RANK

1.   IN   TO
2.   A
3.   CAN   HER
4.   -PY
5.   -ER
6.   AND
7.   OF   THE   THAN
8.   -ING

two bound forms were judged to be words relatively more frequently
than the four following function words: 'AND', 'OF', 'THE' and
'THAN'. The latter result was even more surprising than the
difference in the average frequency of wordhood judgments. The
conclusion is quite direct that different processes of judgment
are being tapped by the two techniques.

INDIVIDUAL JUDGMENT CONFLICTS -

The summary data of TABLE XII offer no further illumination. To examine further the incompatibility of judgments it is necessary to penetrate through the massed data to the performances of each individual. Should we not try to find out whether discrepancies of this order are some sort of average effects or whether they are ascribable to some large minority in the sample ?

TABLE XIII attempts to display the implicit and explicit judgments of the ten children and the conflicts between contrasting judgments wherever possible. TABLE XIII has this format: the data for each child are in a row labelled with his name; the data for each of twelve test items comprise the columns of detail information; each cell, where row and column intersect, is divided into two entries, the upper containing explicit word judgments and the lower containing implicit judgments. The letter 'W' represents a 'word' decision and 'N' a 'non-word'. The letter 'C' indicates that the child altered the test item in his repetition of it during the implicit judgment (checker taking) task. An asterisk marks a conflicting pair of judgments on the same test item. For example, Tracey parsed utterance 10 (/THE /PUPPY /WANTS /TO /EAT /.) in the standard fashion, thus implying that '-PY' is not a word; when asked directly, she judged the same item to be a word; thus her judgments are in conflict. The summary columns at the right show the ratio of conflict within the contrast of the data. The rows are ordered by reading development.

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TABLE XIII

	THE	A	IN	OF	TO	AND	THAN	HER	CAN	-PY	-ING	-ER	NUMBER OF CONTRASTS	NUMBER OF CONFLICTS	CONFLICTS RATIO
LYNETTE	W* / WWW	W / WW	W / W	N / N	W / W	W / W	N* / W	W / W	W / W	N / N	N / N	W* / N	12	2	.166
GARRETT	N* / WWW	W / WN	W / W	N / N	W / W	W / W	N / W	W / W	W / W	N / N	N* / W	N / N	12	2	.166
TRACEY	W* / WWW	– / NW	W / W	W* / W	W / W	W / W	W / C	W / W	W / W	W* / N	– / N	W* / N	10	3	.400
LAURI	W* / WNN	W* / N	W* / W	– / N	– / N	N / N	N / N	W* / N	W* / N	– / N	N / N	– / N	7	5	.714
DEBBIE	W* / CWN	W* / W	W* / N	N / N	W* / W	W* / N	– / N	W* / N	N / N	W* / N	W* / N	N / N	11	7	.636
EHREN	N / CWN	W / NN	W / W	N* / W	N / N	– / N	– / N	N / N	W / C	– / N	– / N	– / –	6	2	.333
LOREN	W* / NNN	W* / N	W* / N	W* / W	W* / N	– / N	W* / N	W* / N	W* / N	W* / N	N / N	W* / N	11	8	.678
TINA	W / WNW	– / NW	– / W	W / W	W / W	N / W	W / W	– / N	W / N	– / N	W* / W	W* / N	8	3	.375
KEVIN	W / NCW	– / WW	– / N	W / W	W / W	N / W	W / W	W / W	W / W	W / W	W / W	W / W	11	0	.0
GONZALO	N* / WWW	W / –	W / W	– / –	W / W	W / W	W / W	W / W	W / W	W / W	N* / W	N* / W	10	3	.300

N.B.: The format and data of this table are explained in the text.

TABLE XIII can be very confusing if one examines the 'N' s and 'W' s without direction. Let's attempt to see some order in the data and thereafter go on to examine individual entries. Restricting one's attention temporarily to the seven top rows of TABLE XIII, the data follow the pattern exhibited in TABLE X (MODIFIED GROUPING OF TEN CHILDREN BY READING DEVELOPMENT). Specifically, the two beginning readers show a low degree of conflict in their judgments (17%); Tracey, judged 'ready to read', shows a moderate degree of conflict (40%); three of four in the phrasal class show a high conflict ratio (average 68%). The fourth phrasal non-reader, Ehren, exhibits a moderate degree of conflict. The three bottom rows do not fit the pattern at all. Let's examine these four last cases in detail.

Kevin's judgments show no conflict whatsoever. He always judged a test item to be a word. Since he followed a syllabic parsing strategy with only a few exception ('MOTHER', 'BROTHER'. and 'CARRY'), every implicit function word judgment was a 'word'. Under direct questioning, he never denied word status to any test item, so he could have no conflict. Recall that Kevin's idea of reading was the sounding out of letters, the implication being that every letter is a word. Here we may see the cognate proposition that every sound is a word. Similarly with Gonzalo; note that his two standard direct judgments, that '-ING' and '-ER' were not words, were two of the three sources of conflict, his denial of wordhood to 'THE' being the third. Two factors seem to combine to reduce the

conflict ratio among the syllabic group. The first is that nine of
the twelve test items are words; by the bias of the test design, the
syllabic strategy was more frequently correct than was the phrasal
strategy. This example will demonstrate the importance of the fact:
suppose a child knows how to spell 'IN' and is thus firmly convinced
that 'IN' is a word. If the child parses an utterance with a phrasal
strategy, he will face a conflict. There will be no conflict if he
uses a syllabic strategy. The second factor, as will be seen in the
next section, is that children find it easier to justify an item's
being a word than to deny that an item is a word.

Tina's implicit judgments were mixed but dominated by a
phrasal strategy. Her explicit judgments were also mixed but with
the syllable counting dominant. It is hard to imagine what such a
confluence of vacillation should bring in comparison with the
other children. Do note, however, that her decisions were in
conflict.

Ehren decided to stop parsing sentences after utterance 10.
The data on his implicit judgments are incomplete. Furthermore, he
altered the utterances twice in his repetitions, substituting 'COULD'
for 'CAN' and omitting the initial 'THE' from 'The boys swim in the
pool'. Ehren's checker taking for 'The puppy wants to eat' implied
that 'THE' was not a word; the checker taking for /BOYS /SWIM /IN
/THE /POOL / clearly marked 'THE' as a word, but the omission of the
initial 'THE' leaves that judgment unclear. Given the lack of clarity

I have not marked the 'THE' cell as one of conflict. Were one to
do so, the level of conflict in Ehren's case would be (3 conflicts
out of 6 contrasts) moderate to high. To a direct query, Ehren
replied that 'SIP-OF-SODA' was a single word, yet he had parsed
utterance 9 thus: /I /WANT-A /SIP /OF /SODA /. This fact argues
that Ehren's judgments contained more conflict than is shown in
TABLE XIII.

DIRECT JUDGMENTS SECTION SUMMARY -

The primary conclusion I draw from these data is that for
the most common pattern of development, which I take to be from a
phrasal strategy to a standard, the degree of conflict between
implicit and explicit judgments varies with the child's reading
development. This conclusion is reflected in TABLE XIV (STRATEGIES
AND JUDGMENT CONFLICTS OF TEN CHILDREN). We asked whether a child's
behavior on the checker task showed what he thought about words.
The answer varies with the child's reading development. If he knows
how to read and uses a standard strategy on the checker task, the
degree of conflict with his direct judgments of wordhood will be
small. If he does not know how to read and if he uses a phrasal
strategy in checker taking, the degree of conflict with his direct
judgments will be high.

For children who suffer these conflicts of judgment, it is
clear that different decision rules are active in the two tasks.
What word concepts do they have that permit them to exhibit what
appear to be such conflicts of judgment ? We will pursue this
question by examining excerpts from the protocols of the interviews.

TABLE XIV

STRATEGIES AND JUDGMENT CONFLICTS OF TEN CHILDREN

GROUP	CHILD	STRATEGIES	CONFLICT RATIO
I. Beginning readers:			
	LYNETTE	STANDARD	17 %
	GARRETT	STANDARD	17 %
II. Ready to Read:			
	TRACEY	NEAR-STANDARD	40 %
III. Non-readers:			
A.	LAURI	PHRASAL	71 %
	DEBBIE	PHRASAL	64 %
	EHREN	PHRASAL	33 % ?
	LOREN	PHRASAL	69 %
B.	TINA	MIXED, PHRASAL DOMINANT	38 %
C.	KEVIN	SYLLABIC	0 %
	GONZALO	SYLLABIC	30 %

SECTION THREE: THE INCLUSIVE WORD CONCEPT

      Gonzalo's performance on the checker task shows a commitment
to the syllabic strategy as extreme as anyone could wish. It would be
logical, then, that when directly asked about any test item's being
a word he would declare it so and would justify the decision 'by the
sound'. The data are far different. I consider the following the
single most striking excerpt from the protocols:

Ex. 4   Bob: How about 'HER' in "her baby" ? Is 'HER' a word ?

           Gonzalo: Yes.

           Bob: How do you tell that ?

           Gonzalo: 'Cause it's 'HER' and it's a girl.

           Bob: All right. Let's try another one. "I want a sip
                    of soda".

           Gonzalo: Yes, that's a word.

           Bob: That's a word too ?... O.K. Can you count the...
                    I'm going to say, "I want a sip of soda", and let
                    you take checkers for every word you hear....

           Gonzalo: (takes one checker).

           Bob: Is the whole thing one word ? Or is it made up
                    of many words ?

           Gonzalo: I don't know (sounding rather pitiful).

One might conclude from this excerpt that Gonzalo doesn't have the
faintest idea of what words are. My conclusion is different. I

maintain that Gonzalo and I have different and imcompatible concepts of the English word.

The evidence so far should establish that children have some concept in their minds when they use the word 'WORD'. Is it necessary that these ten children have the same concept in their minds ? Not at all. However, to the extent that they share a common experience of language as an oral medium of communication we might expect their concepts to have a common core. Is it possible to imagine a concept of 'WORD' for pre-readers that can make sense of the variety of data resulting from the interviews ? I believe so and will now proceed with the attempt.

One might wonder whether children have a hard time figuring out what words are. One of Tracey's comments may answer the question:

Ex. 5   Bob: ... Have you ever heard of 'OFTEN' ? I mean is
                        it a word you know ? Is it a word ?

           Tracey: Yah.

           Bob: How do you tell ?... I mean, how do you tell it's
                      a word ?

           Tracey: It's easy to tell.

I don't believe Tracey was being evasive or giving me a smart answer. She was giving evidence that the child's word concept must be pretty obvious. Based on her observation and the fact that no child asked me what a word was and on each child's willingness to make decisions without much hesitation, I conclude that their concept of the English

word must be very straightforward.

Tracey and Loren provide more specific indications in their discussion of the word 'BIGGER':

Ex. 6   Bob: When we say "bigger" is /GER/ a word ?

         Tracey: (head shake yes).

         Bob: /GER/ is ?... How about "bigger" ? Is "bigger"

                    a word ?

         Tracey: (head shake yes).

         Bob: And /GER/ is also.

Ex. 7   Bob: When we say "bigger", is /GER/ a word ?

                    In "bigger" ?

         Loren: (head shake yes).

         Bob: And "bigger" is a word too? Is that right or wrong ?

         Loren: Right.... I want to get bigger.

These two children saw no incompatibility in judging both a word and its parts to be words. Loren was a phrasal parser and Tracey was near standard with phrasal residue.

Kevin, a syllabic parser shows the same inclusiveness:

Ex. 8   Bob: How about if I said 'BANANAS' ? Is that one word

                    or is it two words ?

         Kevin: Two.

         Bob: Two ?

         Kevin: Or one.

         Bob: Two or one ?

Kevin: Yeah.

Whatever the pre-reader's word concept might be, we should expect to find evidence of it in those children who are surely not readers. Debbie's discussion of 'BAD' shows a decision comparable to Kevin's discussion of 'BANANAS':

Ex. 9   Bob: How about 'BAD' ? Is that a word ?

Debbie: Bad.

Bob: Bad... as in "bad men".

Debbie: /BAD/.../MEN/... so /BAD/ comes first and /MEN/ comes last... two.

Bob: Two words ?

Debbie: And they go together.

Bob: When they go together are they still two words or are they one word ?

Debbie: I think they're one word. I think they're two words.

It is not necessary to conclude that Debbie's second judgment corrects and supersedes the first. For more direct evidence that such are not perceived as conflicting judgments examine these four excerpts:

Ex. 10   Bob: Is 'OF' a word ?

Loren: Huh ?

Bob: When we say, "I want a sip of soda", is 'OF' a word ?

Loren: (head shake yes).

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	Bob:	How about "sip of soda" ?... Yes ?
	Loren:	Yeah.
	Bob:	Is "of soda" a word ?
	Loren:	(head shake yes).
Ex. 11	Bob:	Is "sip of soda" a word ?
	Tina:	Yeah.
	Bob:	And "sip" is a word ?
	Tina:	Uh huh.
	Bob:	And "of" is a word ?
	Tina:	Yeah.
	Bob:	How about 'A' (/uh/) ?
	Tina:	Yes.
Ex. 12	Bob:	Is "of" a word ?
	Tracey:	Yeah.
	Bob:	What about "sip of soda" ? Is that a word ?
	Tracey:	Yes.
	Bob:	What about "sip of" ?
	Tracey:	Yes.
	Bob:	How about "of soda" ?
	Tracey:	Yes.
Ex. 13	Bob:	What about 'A' (/uh/) ? Is 'A' (/uh/) a word when we say, "I want a sip" ?
	Lauri:	Yep.

Bob: And what about "sip of soda" ? Is that a word ?

Lauri: Yep.

Bob: How about "of soda" ? Is that a word ?

Lauri: (head shake no).

Bob: No ?

Lauri: 'SODA' is a word.

When the phrase "sip of soda" was included in the test utterance, the purpose was to determine whether the preposition was judged to have more affinity for the preceding or following content word, i.e., 'SIP' or 'SODA'. The answer to that question is not unambiguous. More importantly and unexpectedly, the data of these interviews suggest, even more strongly, imply that pre-readers' word concept is this:

A WORD is what we call an utterance or any of its parts. If a child has such a concept of a word, it would explain how Gonzalo could both count syllables, even phonemes, and sentences (those aggregates of syllables) as words. It would explain how one could say that 'BIGGER' is a word and simultaneously that /GER/ is a word. It would explain how 'SIP-OF-SODA' and all its constituents could simultaneously be words.

The seven children of these protocols all exhibit the inclusive word concept. Lauri's rejection of "of soda" as a word will be addressed in the final section of the paper, as will Tracey's contradiction: exhibiting an inclusive word concept in direct queries and a standard word concept in checker taking.

Ehren's data do not show directly that he owns an inclusive word concept. As in other cases, Ehren's interview was inconclusive. Let us attempt, nonetheless, to arrive at a tentative conclusion about whether he owns such a concept by examining the data for "sip of soda" in his case:

Ex. 14   Bob: Is 'A' (/uh/) a word ?

           Ehren: Yes.

           Bob: How about 'OF' ?

           Ehren: Unh unh.

           Bob: When you said, "I want a sip of soda", I thought maybe 'A' was not a word because you didn't take a checker for it. How about "sip of soda" ? Is that a word ?

           Ehren: (head shake yes).

           Bob: What about "of soda" ? Is that a word ?

           Ehren: Unh unh.

In excerpt 13, it was lucky that Lauri volunteered the information that she considered 'SODA' a word. Ehren did not volunteer such useful data. We decided earlier that his basic parsing strategy was phrasal, yet his parsing of utterance 9 was as follows:

/I /WANT-A /SIP /OF /SODA /.

This contrast, of the parsing of the phrase "sip of soda" and the judgment under direct query, was used before to indicate greater conflict in Ehren's judgments than was obvious. On the same bases,

I also found the uncertain conclusion that Ehren owns an inclusive word concept.

Two other children show no evidence of an inclusive word concept: Garrett and Lynette. Garrett avoids an inclusive word concept in direct judgments by identifying independently meaningful elements as words and by excluding aggregates of such elements from the status of words: I call such a procedure a non-compounding rule. This excerpt may make the point clearer:

Ex. 15   Bob: Is "TV" one word or two words ?

Garrett: /T//V/... Two words.

Bob: Why is it two words ?

Garrett: 'Cause there's a 'T' and a 'V'.

Bob: Oh. Each of those is a word ?

Garrett: Uh huh.

Bob: So if you have something that's made up of two things that are words, it's not a word ? Is that right ?

Garrett: Right.

This excerpt may be interpreted as a case of my putting words in the child's mouth. My sense of the situation was different. My attempt was to render articulate those ideas his decisions seemed to imply were operative, a sort of empathetic exploration of the bases of his decisions. Previously, I had no thought that such an idea could have invaded anybody's mind, but I was willing to suspend my disbelief

in an attempt to understand what Garrett said. I tried to feed back to him what he seemed to be communicating to me, then asked if I got his message right, and he said "right". Lynette also exhibited a non-compounding rule in her avoidance of the inclusive word concept, although the evidence is less coercive in her case.

The conclusion of this section is summarized in TABLE XV (CHILDREN EXHIBITING THE INCLUSIVE WORD CONCEPT). The excerpts from which the conclusions derive, by their mixing together questions of judgment and justification in a specific context, hint at the entanglement of these two classes of data. We will now attempt to disentangle the two and proceed with an examination of the justification data.

TABLE XV

CHILDREN EXHIBITING THE INCLUSIVE WORD CONCEPT

GROUP	CHILD	STRATEGIES	EXHIBITS INCLUSIVE WORD CONCEPTS	EX. NO.
I. Beginning readers:				
	LYNETTE	STANDARD	NO	--
	GARRETT	STANDARD	NO	15
II. Ready to Read:				
	TRACEY	NEAR-STANDARD	YES	12
III. Non-readers:				
A.	LAURI	PHRASAL	YES	13
	DEBBIE	PHRASAL	YES	9
	EHREN	PHRASAL	YES ?	14
	LOREN	PHRASAL	YES	10
B.	TINA	MIXED, PHRASAL DOMINANT	YES	11
C.	KEVIN	SYLLABIC	YES	8
	GONZALO	SYLLABIC	YES	4

SECTION FOUR: HOMOPHONIC CONFUSION

AN UNEXPECTED JUSTIFICATION -

When I included the utterance, "The puppy wants to eat" in my test design, I expected '-PY' to be separated occasionally by a syllable counting strategy, and I expected that such a separation would be justified 'by the sound'. The following excerpts show three examples of an unanticipated justification:

Ex. 16 Bob: When we say "puppy" is /PI/ a word ?... When we

        say "puppy" ?

    Loren: (head shake yes).

    Bob: Yes. How do you know ?

    Loren: Because /PI/ is in 'ABC'.

Ex. 17 Bob: How about /PI/, when we say "puppy" ?

    Debbie: /PUH/... /PI/.

    Bob: Is /PI/ a word or is it something else ?

    Debbie: It's two words.

    Bob: There are two words, then, so /PI/ is a word also ?

    Debbie: Uh huh.

    Bob: Well, how do you know that ? How do you know it's

        a word ?

    Debbie: 'Cause I keep practicing my 'ABC' s.

    Bob: Is /PI/ part of the ABC's ? Is that how you know

        it's a word ?

Debbie: I think so.

Ex. 18   Bob: When we say "puppy", is the /PI/ a word ?

Tracey: Yeah.

Bob: "Puppy". The /PI/ ? Not the /PUHP/ part. The /PI/, is that /PI/ a word ?

Tracey: /PI/ is in the alphabet so I think it's a word.

These three children failed to conclude that if the sound /PI/ is part of "puppy" it does not relate to the letter name. The failure to exclude the alphabetic argument on the basis of the context the sound occurred in exemplifies the context insensitivity of these justifications. You will notice that these justifications were volunteered by the children.

THE VALUE OF JUSTIFICATIONS -

What are such justifications worth ? Should not one expect
that children, as many adults do, most frequently make judgments or
assume positions and only afterwards concern themselves with
justifying their behavior ? Why should one believe that justification
illuminates the process of judgment instead of believing that it
merely shores up a position or an argument ?

There are cases where justifications are obviously defensive
and only marginally illuminating:

Ex. 19   Bob: Is 'CAN' a word ?

           Tina: Yeah.

           Bob: How do you know ?

           Tina: Because my Mommy used it.

Not all reports are so opaque. Contrast the former with this excerpt:

Ex. 20   Bob: When we say "to eat", is 'TO' a word ?

           Loren: Numbers, one, two.

Loren's response springs from an experimental situation which required
justifications for judgments. I argue, especially in this case, that
the justification reveals the process of judgment. The conservative
conclusion is that each justification should be considered on its
merit as revealing the grounds of judgment or merely defending an
espoused position. The goal of my argument does not require such
an analysis, however. I offer these justifications not to support my

interpretation of the children's direct judgments but as data. In
the domain of that data, I draw consequences from the distribution
of the categories of arguments. For my purposes, you need only
believe that the children's justifications are not entirely frivolous.
The data are sufficiently ingenuous to carry conviction when the
justifications themselves must be taken seriously.

HOMOPHONIC CONFUSION -

The first three excerpts of this section (Ex. 16 through
Ex. 18) exemplify homophonic confusion. Specifically, the bound
diminutive suffix '-PY' is confused with its homophone 'P', the
alphabet letter. Consider this example the archetype of homophonic
confusion. The examples show the confusion crossing the boundaries
of the concepts letter and word. This is not a restriction, for
other examples from the same utterance (9), "The puppy wants to eat",
show homophonic confusion bridging the gap between the concepts
number and word. Confer Ex. 20 and this excerpt:

Ex. 21   Bob: When we say "to eat", is 'TO' a word ?

           Lynette: Yes.

           Bob: How do you know ?

           Lynette: 'Cause it's like two years old... maybe 'TO'

                     would be like two people.

Lest one believe that there is here a simple confusion between words
and a limited set of symbols, consider excerpt 22:

Ex. 22   Bob: When we say "The puppy wants to eat", is 'TO'

                     a word ?

           Tracey: Yeah. 'TO'... when you give someone a birthday

                     card.

           Bob: What about it ? ... Oh, when you give, you give

                     it 'TO' them.

Notice that both the diminutive suffix '-PY' and the infinitival preposition 'TO' were judged to be words significantly more frequently in the direct questioning than in the checker task. Homophonic confusion explains that difference in judgment.

There appears to be no magic in numbers or letters of the alphabet that makes them loci of homophonic confusion. The last excerpt (22) shows the confusion is aural and not based merely on a small set of symbols. Letters and numbers loom large in the excerpts for two reasons: most letter names and digit names are monosyllabic; both categories of symbols are centers of instruction for children meeting reading-readiness and number-readiness exercises.

The word 'CAN' is also a locus of homophonic confusion:

Ex. 23   Bob: What about /KAEN/ ? We say "can carry", "A mother can carry". Is /KAEN/ a word ?

          Lauri: There's a can with beans in it.

Ex. 24   Bob: I said, "A mother can carry her baby". Is /KAEN/ a word ?

          Tracey: Yes.

          Bob: How do you know ?

          Tracey: 'Cause corn grows in a can, and mushrooms.

Contrast these examples where the justification depends upon the test item being judged a word with the next excerpt, where the confusion and justification are brought forward even when the item is judged not to be a word:

Ex. 25   Bob: Is /KAEN/ a word when we say "can carry" ? Is

/KAEN/ a word ?

Loren: (head shake no).

Bob: Well, what sort of thing is /KAEN/ ?

Loren: When something is in a can and you can't get it

out.

This last example has Loren using 'CAN' (in "can't") to describe the homophone he is confusing it with. This is a striking example of explicit judgment's context insensitivity.

Many linguistically unsophisticated adults who are tolerable readers may be quite unable to offer an articulate description which would discriminate between the homographs 'TO' and 'TO', one taking the infinitive verb and the other the indirect object. One would not expect pre-readers to be sufficiently familiar with English spelling to easily discriminate between the homonyms 'TO', 'TOO', and 'TWO'. Given that children may own an inclusive word concept, is it not reasonable that homophonic confusion should extend down into those structures we literate adults consider words ? Excerpts 16 through 18 show that to be the case. To the extent that pre-readers own an inclusive word concept, the phenomenon of intra-word homophonic confusion assumes an even greater importance: any polysyllabic word which has as a constituent a homophone for a monosyllabic word is vulnerable to homophonic confusion.

Examination of the justification data has led us to note its context insensitivity and to observe and appreciate a previously unmarked phenomenon. Let us continue.

SECTION FIVE: JUSTIFICATIONS

The categories into which I class children's justifications are previewed and summarized in TABLE XVI (JUSTIFICATIONS: CHILDREN'S ARGUMENTS FOR DEFINING WORDHOOD); the categories are exemplified in the following text. After the examples for each category, the occurrences of the argument are cited for each child, and its relation to the immediate verbal context is noted. The relation in consideration is whether the argument is applied to the item standing alone or whether the argument itself leads to consideration of the immediate verbal context. If the former, the argument is judged context independent; if the latter, the argument is context dependent.

The categories of justification are meant to be neither exhaustive nor disjunct. They are an attempt to illustrate the kinds of arguments the children used. In a few cases where there is no explicit example of a category I propose (incomplete meaning and accent counting), I will infer the existence of such a justification as underlying the judgments cited. Whenever such justifications are referred to, they will be marked thus: (?).

TABLE XVI

JUSTIFICATIONS: CHILDREN's ARGUMENTS FOR DEFINING WORDHOOD

INCLUSION ARGUMENTS - are such as permit the inclusion of any possible English sound in the class of words.

SYLLABLE COUNTING - the statement of a syllable string is repeated with intervals between the sounds and is followed by a compatible number.

ACCENT COUNTING - the repetition of a string of syllables provokes a response of number equal to the accents in the expressed string.

POSSIBLE NAMES - if an item could be either a given or a surname, the item is a word.

INCLUSION - if an item is contained in a known word, that item, or contained part, is also a word.

ASSERTION - if an item is asserted to be a word, it is a word.

QUALIFYING ARGUMENTS - use characteristics of the item to place it in the class of words.

LABELLING - if an item is recognized as the name or label of a thing, the item is a word.

EXEMPLIFICATION - an item is a word if it may be produced in a phrase wherein the item is obviously distinct from other elements in the phrase.

SYNONYMY - if an item means the same thing as a known word, the item is a word.

LEXICAL - if you know how to spell a word which sounds the same as an item, the item is a word.

EXCLUSION ARGUMENTS - deny word status to some test item.

NON-COMPOUNDING - if an item is composed of words, it is not a word.

NON-RECOGNITION - if an item is not in one's vocabulary, it is not a word.

INCOMPLETE MEANING - if an item has no closed meaning, it is not a word.

CONTEXT EDITING - if the immediate verbal context permits subsumption of the item in a larger collection of sounds which comprise a word, the item is not a word.

INCLUSION ARGUMENTS -

Inclusion arguments are such that their purpose or effect is to permit the inclusion of any possible English sound in the class of words.

SYLLABLE COUNTING - This argument is inferred as having application when my statement of some item is repeated with distinct intervals between the sounds and the sounds are counted. These excerpts are for two children whose checker taking did not indicate syllable counting as the dominant strategy:

Ex. 26   Bob: What about 'TV' ? Is that one word or two words ?

          Tina: /TI/.../VI/... two words.

          Bob: How can you tell ?

          Tina: /TI/./VI/.../TI/ /VI/, two words.

Ex. 27   Bob: I said, "Bad men often kick small dogs". Is

                    'OFTEN' a word ?

          Debbie: I guess so... /OFF/.../EHN/... two.

          Bob: Two words ?

          Debbie: Yeah.

Syllable counting, as a criterion for judging whether or not some item is a word, shows a completely non-standard concept of what words are. The first reaction I had was that the children knew they were supposed to count something and were counting whatever they could. I believe

this reaction is a superficial explanation of the behavior; it explains their behavior by their complaisance, for this reason setting aside data which illuminate the inclusive word concept under which syllable counting could be a reasonable procedure for judging the number of words in an utterance.

Instances by child:

Debbie: OFTEN, BABY, PUPPY, SLEDDING, BIGGER

Tina: TV, EAT (/I/.../TUH/)

Context dependence: None

ACCENT COUNTING - 'ELEPHANTS' was included in the polysyllabic noun list to check for any evidence of accent counting. Kevin was the only child who showed this procedure in queries about individual test items. The following exerpt exhausts the data:

Ex. 28   Bob: Is 'ELEPHANTS' one word or two words ?

          Kevin: Two.

          Bob: How come it's two ? I mean, can you explain why ?

          Kevin: The sound.

          Bob: Because of the sound ? . . . How about if I said 'BANANAS', is that one word or two ?

          Kevin: Two.

          Bob: Two ?

          Kevin: Or one.

          Bob: Two or one ?

          Kevin: Yeah.

          Bob: How about 'CROCODILE' ?

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> Kevin: Two.

Kevin did not say he was counting the accents in the words, any more than Tina or Debbie said they were counting syllables. Nonetheless, his judgments on 'ELEPHANTS' and 'CROCODILE' suggest accent counting as the effective criterion he used in this case. I infer then that his justification by 'the sound' meant justification by accent.

INCLUSION - The justification has this form: if an item is contained in a known word, that item, the contained part, is also a word. The single example from the interviews is this:

Ex. 29   Bob: When we say "bigger" is /GER/ a word ?

          Tracey: (head shake yes).

          Bob: /GER/ is ? ... Well, is "bigger" a word ?

          Tracey: (head shake yes).

          Bob: And /GER/ is a word also.... Well, how do you
                   know about /GER/ ? How do you know that's a word ?

          Tracey: 'Cause in 'GIRL'.

          Bob: Oh.

          Tracey: 'GIRL'... and it has /GER/ in it.

To show this argument is not entirely idiosyncratic, I provide another, lexically based, example of the same argument (from some conversations posterior to the interviews of this experiment):

Ex. 30   Bob: You know that 'IN' is a word ?

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Tina: Umm (head shake yes).

Bob: How do you know ?

Tina: /I/ /NUH/.

Bob: Huh ?

Tina: (writing her name and pointing to the letters)
            /I/ /NUH/.

Bob: Oh. Because 'IN' is in 'TINA'... O.K.

Instances by child:

    Tracey: /GER/

Context dependence: The context in which the sound originally
        occurred is not invoked to justify its wordhood; thus this
        argument is independent of that context, the relevant one.

POSSIBLE NAMES - This justification, that an item is a word if it
could be a name, is used twice by Lauri and not by anyone else.

Ex. 31   Bob: When we said 'OFTEN' was that a word ?

          Lauri: Yes.

          Bob: How do you know about something like 'OFTEN' ?

          Lauri: Because, like it can be a name, like Annie Often.

          Bob: I don't understand. Could you say that again ?

          Lauri: Annie Often.

          Bob: Annie Often ? Often could be a name ?

          Lauri: Yeah.

          Bob: And that's how you know ?

          Lauri: (head shake yes).

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This part of the interview obviously puzzled me. In retrospect, I imagine that Lauri was referring to the well known comic strip character Little Often Annie. Lauri's pronounced Boston accent makes this a tenable speculation. Lauri is willing to consider a surname a word. In contrast, note that Lynette, a beginning reader, confronts the same issue and decides that a 'last name' is an alternate class into which non-words may fall; her incomplete resolution of the issue appears at the end of the excerpt:

Ex. 32   Bob: How about '-ING' ?

         Lynette: No.

         Bob: Why is that ?

         Lynette: Because '-ING' doesn't sound like a word. '-ING' is like, sounds like, uh, kind of a last name.

         Bob: Do you know somebody with a last name like that ? I guess I don't understand. Maybe I don't know anybody with a last name like that.

         Lynette: '-ING' is one of my cousin's friend's last names.

         Bob: Oh ?

         Lynette: That came to my cousin's house.

         Bob: But that doesn't sound like a word, though ?

         Lynette: No.

         Bob: But are names words ?

         Lynette: Yes.

         Bob: Like your name's 'LYNETTE' and my name's 'BOB', those are words.

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Lynette: Bob and Lynette.

Bob: Is that a word ?

Lynette: No.

Bob: What is it ?

Lynette: A sentence.

Note that through her access to a word 'sentence' as a label for an intended string of words, Lynette avoids the inclusive word concept.

Instances by child:

Lauri: OFTEN ("Orphan" ?), AND ('ANN')

Context dependence: None

ASSERTION - In its simplest form this argument is a pure assertion, for example, Gonzalo's inscrutable, terminal argument "'Cause". The usual form has a historical cast wherein the claim is that one learned the word, or at least the item's wordhood, sometime in the past. The coerciveness of the argument depends on the richness of detail associated with it. For example, were someone to ask me if 'SESQUIPEDALIAN' is a word, I would justify saying it is by noting that I read that word once in a play by Ben Jonson (Every Man in His Humour) and learned subsequently that it had been coined by Horace in parody of pedantic polysyllabicity.

Ex. 33   Bob: Is 'OFTEN' a word ?

Garrett: (head shake yes).

Bob: How do you know ?

Garrett: I just know.

Ex. 34   Bob: Is 'CAN' a word ?

          Tina: Yeah.

          Bob: How do you know ?

          Tina: Because my Mommy used it.

Ex. 35   Bob: 'BANANAS' is one word ?

          Ehren: Yep.

          Bob: How do you know that ? It makes a lot of sounds,
                    doesn't it ?

          Ehren: I learned how.... I learned how to do that.

          Bob: How to do what ?

          Ehren: Say word.

Ex. 36   Bob: Is 'TV' one word or two words ?

          Ehren: /TI//VI/... one word.

          Bob: Some children have told me they think it's two words.
                    How do you know it's one word ?

          Ehren: 'Cause my mother teach me... and my mother's a teacher.

The justification begs the question of application, which seems to be the
primary confusion. How does one know, for example, that the word one
used before is the item under discussion, which might be a similar
sounding subordinate syllable ?

          Instances by child:

              Debbie: BANANAS

              Ehren: BANANAS, SOME, TV

Garrett: OFTEN

Gonzalo: TO, AND

Tina: OFTEN, CAN, /GER/ (in "bigger")

Context dependency: None

QUALIFYING ARGUMENTS -

Compared to the myriads of sounds and strings of sound composed of English phonemic elements, the number of English words is not very great. Consequently, of all those sounds which might occur, only some much smaller number qualify as words. The qualifying arguments are tests for admitting items to the class of words. They reflect standard usage and even comprise the main elements in the explanation repertoire of literate adults. The arguments are perfectly sensible when properly applied.

LABELLING - The argument is that if an item is the label of some thing, the item is a word. The clearest example of this justification is this excerpt:

Ex. 37   Bob: 'TV'. is that one word or two words ?

        Lauri: One.

        Bob: Some children told me it was two words. I wonder how you knew it was one word.

        Lauri: We look at TV, that's one word.

Labelling goes wrong when misapplied. Recall Tracey's noting that /PI/ is in the alphabet in Ex. 18.

Instances by child:

        Gonzalo: CAN

        Lauri: TV

        Tracey: CAN, -PY

Context dependence: None

EXEMPLIFICATION - The argument is that a sound is a word if it can be used in a sensible phrase. There is no constraint that the exemplification must be correct. Confer Ex. 20 wherein Loren exemplified the meaning of the infinitival preposition 'TO' by saying "Numbers, one two".

Ex. 38   Bob: Is 'BAD' a word ?

           Lauri: Yeah.

           Bob: How do you know that ?

           Lauri: Like a bad dog.

Ex. 39   Bob: How about 'IN' ? Is 'IN' a word ?

           Loren: We go in something.

Ex. 40   Bob: When we say "some grown-ups", is 'SOME' a word ?

           Lynette: Yes.

           Bob: How do you know ?

           Lynette: 'Cause... 'SOME' is like...some people...some food.

These last two excerpts exhibit good definition by highlighting the term in question. Lynette varies the noun 'SOME' modifies, and Loren keeps variable the place or thing one goes in.

     Instances by child:

         Lauri: BAD, IN, CAN

         Loren: IN, TO, THE

         Lynette: OFTEN, SOME, THE

   Context dependence: None

SYNONYMY - If an item means the same thing as a known word, then the item is a word. Since most examples of this class refer to the possessive pronoun 'HER' and justify its word status by its ability to replace the noun 'GIRL', this category might be questioned. However, the identical argument is offered for the pairs ('BAD' and 'NAUGHTY') and ('SMALL' and 'TINY').

Ex. 41　Bob:　　How about 'HER' when we said "her baby" ? Is
　　　　　　　　'HER' a word ?

　　　　Loren:　Yeah, because a her, a her girl.

Ex. 42　Bob:　　Is 'SMALL' a word ?

　　　　Lauri:　I think... a small dog... tiny is a word.

Ex. 43　Bob:　　... Is 'BAD' a word ?

　　　　Tracey:　(head shake yes).

　　　　Bob:　　How do you know ? Can you tell me how you know
　　　　　　　　it's a word ?

　　　　Tracey:　When kids are naughty that means bad.

Instances by child:

　　　　Garrett:　HER

　　　　Gonzalo:　HER

　　　　Lauri:　　SMALL

　　　　Loren:　　HER

　　　　Lynette:　HER

　　　　Tracey:　　BAD

Context dependency: None

LEXICAL - The argument is that an item is a word because one knows how to spell it.

Ex. 44 Bob: Is 'TO' a word when we say "to eat" ? Is 'TO' a word there ?

   Garrett: Yes. I can spell 'TO'.

   Bob: Is that what makes it a word ? That you know how to spell it ?

   Garrett: Wouldn't be a word if nobody would know how to spell it.

Ex. 45 Bob: 'AND'. Is 'AND' a word when we say "Boys and girls" ?

   Tracey: Yes.

   Bob: How do you know about that ? How do you tell ?

   Tracey: Like... my sister got a Bible but we have two of them are the same, and one's from my father and one's from my aunt, and it says 'AND'; it says 'LYNN AND TRACEY'.

The lexical argument is less vulnerable to confusion than are the other qualifying arguments. There are two reasons: the first is that there are fewer homographs (e.g. "bear" [n.] and "bear" [v.]) than there are homonyms (e.g. "bear" [n.] and "bare" [adj.]); more importantly, learning to spell may focus attention on the printing convention as a means of specifying context in the sense of defining word boundaries (confer experiment II in Holden and MacGinitie).

Instances by child:

Garrett: TO

Tracey: AND

Context dependency: None.

EXCLUSION ARGUMENTS -

Exclusion arguments have been separated as a group because of their importance in relation to pre-readers' inclusive word concept. If one thinks of words with an inclusive concept, there is no need to deny wordhood to any sound or string of sounds. If one has a more nearly standard, exclusive concept of the English word, it becomes necessary to decide which sounds in the aural stream of utterance are parts of which words. I claim that one cannot justify standard word judgments, given the language's massive potential for homophonic confusion, without a well-developed repertoire of exclusion arguments.

NON-COMPOUNDING - The prototypical example of this argument's expression is Garrett's discussion of 'TV' (excerpt Ex. 15). I interviewed Lynette one day after Garrett's argument suggested the non-compounding rule to me. Finding it most contrary to the genius of the language, I was ready to follow up any hint that it might be operating for some other child.

Ex. 46   Bob: About 'TV', is that one word or two words ?

            Lynette: Two words.

            Bob: If you can say something that's made up of two words, can that be a word by itself, or is it always two ?

            Lynette: It's always two.

            Bob: So if I hear something like 'COWBOY' -

            Lynette: (interrupting me) That would be two.

Lynette may have taken the rule I stated and immediately applied it to 'COWBOY', supplanting her own judgment with my suggestion. If this be the case, the justification is mine, not hers. My sense of the situation was other, that I was expressing an idea she recognized as being applicable.

> Instances by child:
>
> > Garrett: TV
> >
> > Lynette: TV, COWBOY
>
> Context dependence: None with respect to single syllables;
> the argument is related to the verbal context in its
> tendency to deny wordhood to extended strings of
> syllables.

NON-RECOGNITION - If an item is not recognized, it is not a word. Implied in this statement of 'not recognized' is the second qualification 'when uttered by itself'. This argument may be inferred as applying in use by very young four year old children who are willing to deny that single non-sense syllables are words.

Ex. 47   Bob: How about 'THAN' ? Remember, we said, "My
                   brother is bigger than me" ? Did you ever hear
                   that word before, 'THAN' ?

         Garrett: (head shake no).

         Bob: No ?... Is it a word ?

         Garrett: (head shake no).

         Bob: No ?

Witness here a paradox. Garrett denies he has ever heard 'THAN', yet it is in the production vocabulary of nearly all children less sophisticated than he is. He does not recognize 'THAN' when uttered by itself. This paradox will be addressed in the ultimate section of the paper.

       Instances by child:

          Garrett: THAN

          Lynette: THAN, -PY, -ING

       Context dependence: None

INCOMPLETE MEANING - If an item has no closed meaning, it is not a word. This opaque description needs clarification; the best will come from examining the excerpt which requires the argument's existence. The argument was not stated; it is one I infer applies. The excerpt is Lauri's discussion of 'SIP-OF-SODA' (Ex. 13). Lauri's decision looks like an expression of an inclusive word concept with one of the medial possibilities excluded from wordhood.

       Instances by child:

          Lauri: 'OF SODA' (?)

       Context dependence: The base of this argument is that the item, divorced from a more extended context, is incomplete; its implication is that a different context, either extended or restricted, is required to declare the item a word.

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CONTEXT EDITING - There are no examples of this argument appearing in the protocols. Since this category is the most important of all in processing the aural language in a manner compatible with the written language, it is worthwhile asking precisely what such excerpts might have looked like had they appeared. Let me construct an excerpt from an imaginary interview with a knowledgeable and articulate pre-reader. Call him Noah.

Ex. 48   Bob: Remember, you've just said, "The puppy wants to eat". That sound /PI/, when we say "the puppy", is that /PI/ a word ?

    Noah: Of course not. The sound /PI/ represents at least three English words, but that /PI/ sound is not a word.

    Bob: Well, some children told me they thought it was a word; how do you tell it isn't ?

    Noah: When the /PI/ sound comes right after the /PUHP/, the /PI/ sound is part of the word 'PUPPY' and a sound can only be part of one word at a time.

    Bob: Suppose I said "See the /PUHP/.../PI/ on the floor"?

    Noah: That /PI/ sound is a word. I can tell because you waited after saying /PUHP/. If you said them both together, the sounds would make the word 'PUPPY'.

Children do not usually express themselves quite so clearly as Noah.

Let's rephrase his replies to more nearly conform to the expressions of the ten children of this experiment:

Ex. 49   **Bob:**   Remember, you've just said, "The puppy wants to eat". That sound /PI/, when we say "the puppy", is that /PI/ a word ?

        Noah: No. /PI/ is in 'PUPPY'.

        Bob: Well, some children told me they thought it was a word; how do you tell it isn't ?

        Noah: /PI/ could be a word, but not when it's in 'PUPPY' 'cause 'PUPPY' s the word.

        Bob: Suppose I said, "See the /PUHP/.../PI/ on the floor" ?

        Noah: That would be a word 'cause you waited.

This imaginary interview's excerpt exemplifies what I would call context editing. What it provides is a rule of exclusion for distinguishing between potential homonyms at the syllabic level. The active context may be either preceding syllables or the prosodics of the utterance. The closest approach to such an argument appears in Lynette's discussion of the suffix '-PI':

Ex. 50   **Bob:**   When we say "puppy", do you hear the /PI/ sound ? Is that /PI/, is that a word ?

        Lynette: Yeah...no... I don't think so.

        Bob: Well, how do you tell ? How do you tell when something like that is a word and how do you tell when it isn't ?

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> Lynette: Uh... 'cause... I think it doesn't sound like a word.
>
> Bob: /PI/ doesn't sound like a word ?
>
> Lynette: No.

I consider Lynette's last argument as specious. She was uneasy when she claimed that /PI/ doesn't sound like a word. Two interpretations are obvious here. It's possible the only /PI/ she could think of was 'PEE' and thought of that as a vulgar word not fit for discussion; note, however, that Lynette knew her alphabet as well as or better than the other children, so she was familiar with the letter 'P'. A second interpretation, which I prefer, is that she was unable to express the idea of context, and substituting an inadequate argument she knew was wrong, was uneasy because of her failure.

An evaluation of exclusion rules can start from the data but cannot be rooted therein. This, in fact, is the point. The primary rule for choosing between conflicting arguments for judging an item a word, i.e. context editing, has not yet been discovered by the ten children interviewed for the experiment. The very groping for some such rule of conflict resolution is manifest in the suggested rule against forming compound words. Garrett and Lynette apparently sense there must be some general procedure for deciding between alternate interpretations. Whoever would expect that the first trial at solving a most complicated problem should prove correct ? Galileo made false starts in attempting to formulate the laws of dynamics. Should children be expected to do much better

when confronting a highly irregular language ?

After having defended the children's right to make inaccurate theories and after limiting our expectations for their first trials, I would like to ask how far from being correct is the non-compounding rule ? It is the inverse of the correct rule, which I have called context editing. For example, a non-compounding rule decision is that COWBOY is two words because COW is a word and BOY is a word. The context editing decision is that COW and BOY are not words because they are subsumed in the word COWBOY when they occur together. In both cases, the conflict is resolved by denying wordhood to one set of terms in the conflict. Should we be surprised that monosyllabic words, as a class, have a more salient reality for beginning readers than do polysyllables ? One usually learns COW before COWARD or INCALCULABLE.

THE DISTRIBUTION OF JUSTIFICATIONS -

The distribution of justifications by child is shown in TABLE XVII. The first observation is that there are very few exhibitions of exclusion arguments; the second is that unquestioned examples of these were produced by the two children judged to be beginning readers and owning a standard word concept as determined by the checker task. The most naive of the children, Debbie and Tina, exhibited justifications only of the inclusive class. The same was also true of Kevin and Ehren. Lauri's justifications were comparable to those of Tracey. The general conclusion is that these data correlate with reading development but not in a simple and direct way. The justification distribution completes the last of the three classes of data collected in the experiment. The data of all three classes have been summarized for comparison in TABLE XVIII.

TABLE XVII

DISTRIBUTION OF WORD DECISION JUSTIFICATIONS

CHILDREN:

JUSTIFICATIONS	DEBBIE	EHREN	GARRET	GONZALO	KEVIN	LAURI	LOREN	LYNETTE	TINA	TRACEY
EXCLUSION -										
Context editing	--	--	--	--	--	--	--	--	--	--
Incomplete meaning	--	--	--	--	?	1	--	--	--	--
Non-compounding	--	--	1	--	--	--	--	3	2	--
Non-recognition	--	--	1	--	3	--	--	3	3	--
QUALIFYING -										
Exemplification	--	--	--	--	--	3	--	--	--	--
Labelling	--	--	1	--	3	3	--	--	3	--
Synonymy	--	--	1	--	1	1	--	1	1	2
Lexical	--	--	1	--	1	1	--	--	1	1
INCLUSION -										
Accent counting (?)	--	--	--	--	--	--	--	--	--	--
Assertion	--	3	1	2	2	--	--	--	3	--
Inclusion	--	--	--	--	--	--	--	--	3	1
Possible names	--	--	--	--	--	2	--	--	--	--
Syllable count (?)	5	--	--	--	--	2	--	--	2	--

TABLE XVIII

TEN CHILDREN: DISTRIBUTION OF STRATEGIES, CONFLICTS AND JUSTIFICATIONS

GROUP	CHILD	CHECKER STRATEGY	DIRECT QUERY CONFLICTS	INCLUSIVE WORD CONCEPT	JUSTIFICATION CLASSES		
					EX	QUAL	INC
I. Beginning readers							
	LYNETTE	STANDARD	LOW	NO	5	4	-
	GARRETT	STANDARD	LOW	NO	2	2	1
II. Ready to read							
	TRACEY	NEAR STANDARD	MODERATE	YES	-	4	1
III. Non-readers							
A.	LAURI	PHRASAL	HIGH	LIMITED	? 1	5	2
	LOREN	PHRASAL	HIGH	YES	-	4	-
	EHREN	PHRASAL ?	MODERATE ?	YES ?	-	-	3
	DEBBIE	PHRASAL	HIGH	YES	-	-	5
B.	TINA	MIXED PHRASAL	LOW	YES	-	-	5
C.	KEVIN	SYLLABIC	NONE	YES	-	-	? 2
	GONZALO	SYLLABIC	LOW	YES	-	2	2

EX, QUAL, and INC abbreviate Exclusion, Qualifying and Inclusion
respectively.

I attempt to explain the results of this experiment in terms of a child developing his theory of language from one which served him well as a speaker-auditor to one which permits comprehension of the written word. Whether such reflects the child's inarticulate thought processes is a moot question; at the very least, this is a convenient fiction for describing knowledge developing in the child's mind.

One of the surprising results of the experiment is that pre-readers concept of the English word can be described as the Inclusive word concept:

A WORD is what we call an utterance or any of its parts. Seven of eight non-readers (I include Tracey in this category) gave evidence that they owned such a concept. (Ehren, the eighth, was judged to hold such a concept by a non-coercive argument). The data show children to have such an idea. In opposition, one might argue, "But it's such a bizarre notion of a word ! Where could children get such an idea ? There's nothing else like it."

On the contrary, consider these data. Some short time ago, I asked my daughter, now aged 5 years and 2 months and reading DICK AND JANE books and DR. SEUSS, to tell me what these things were:

```
    7
   25
  316
  274
  ᴀ_____ 2
```

My daughter responded, as I uncovered each item in this list from my notebook, that it was a number. The '2' in the context of '274' was also judged a number. I can not argue that all children learn to count before they learn the alphabet. I suspect that many do. About her judgments, my daughter was very certain. I would cite her judgment that each of these represents a number as an example of a strongly-held theory.

Now contrast her responses for the following items under a similar theory, which she owned sufficiently strongly to make the basis of her judgments but which, as she indicated by her hesitations and corrections, she held to be a suspect theory:

```
    B
  TLX
  QBA
        B
  CAT   A
        C
```

Miriam first judged 'B' to be a word. 'TLX' was a letter string of which she could not decide the wordhood. 'B', within the context of 'QBA', she judged a letter, not a word. Thereupon, she decided that 'B', standing alone, was also a letter and not a word (altering hew previous judgment). Miriam declared 'TLX' a word (is Telex a word ?). 'CAT' she confidently asserted to be a word. 'A' she opined was a letter, could be both. 'C' was both a letter and a word (and indeed, 'see' and 'sea' are words).

If the child has no command of those lexical facts by which we distinguish 'C' and 'see' and 'sea' and if he has no articulate idea of context as excluding the word status of syllables, how profound must be that slough of confusion in which his concept of the English word is mired. Consider the names of letters and numbers shown in TABLE XIX; how much confusion can they generate ? Ultimately, if one imagines that every monosyllabic word in English whose sound appears as a constituent of some polysyllabic word participates in the same homophonic confusion, it must be a miracle that children understand anything at all !

Disinclined to accept miracles, I look for another explanation. I recall, after the end of the last great war, riding down the highway and trying to make sense of a series of signs:

HE SAW THE TRAIN

AND TRIED TO DUCK IT

KICKED FIRST THE GAS

AND THEN THE BUCKET

USE BURMA SHAVE.

I had no trouble with the last line, but the penultimate was quite opaque. About to run into a train, a man might step on the gas pedal so hard one could say he kicked it. But why did he kick the bucket ? How would that help him beat the train ?

Suppose one of my test utterances had been:

TABLE XIX

HOMOPHONES FOR COMMON SYMBOLS

ALPHABET	LITERAL WORD	HOMOPHONES
A	A	
B		BE, BEE, BEA (NAME)
C		SEE, SEA
D		DEE (NAME)
E		-Y (DIMINUTIVE SUFFIX)
F		
G		GEE (WHIZ)
H		
I	I	EYE, AYE
J		(BLUE) JAY
K		KAY (NAME)
L		EL (ELEVATED TRAIN)
M		
N		
O		OH, OWE
P		PEE, PEA
Q		QUEUE (UNFAMILIAR)
R		ARE
S		
T		TEA, TEE
U		YOU, EWE
V		
X		EX (TO CROSS OUT)
Y		WHY
Z		

NUMBERS	DIGIT NAME WORDS	
0	ZERO, OH	OH
1	ONE	WON
2	TWO	TO, TOO
3	THREE	
4	FOUR	FOR, FORE
5	FIVE	
6	SIX	
7	SEVEN	
8	EIGHT	ATE
9	NINE	

Summary: of 26 letters: two are words; 16 have at least one homophone; 7 have two homophones.

of 10 digits: none are words, ten have names which are words; 5 have at least one homophone; 2 have two homophones.

"Earp drew his gun and kicked the bucket".

and you had been the subject (or should I say victim ?). Surely
a literate adult would parse this syllable string in the standard
manner which the printing convention indicates. If I asked you
whether 'KICK' was a word, what would you say ? Perhaps: "I know
how to spell it"; "I used it before"; "it means to push hard with
the foot"; "I can say, 'He kicked the football' "; "we can inflect
it for number and tense". If you would go so far as to introduce
the immediate verbal context, you might argue that 'KICK' is
distinct from 'AND' and 'THE' (both of which are words) and so it
pretty much stands alone. But what does it mean ? Isn't that what
words are all about ? Shouldn't meaning relate to word judgment ?

No. Not always. Not in this case. On 'KICK THE BUCKET',
Webster's Third International Dictionary stands mute; the editors of
the Oxford English Dictionary offer their speculations under
'BUCKET'[10]. The image from which the phrase probably derives its
meaning, that of a slaughtered pig dangling by its feet from a beam
(or bucket) while its blood drains, is lost in the antiquity of the
language. What child would know that history ? None. A number of
children would know that to 'KICK THE BUCKET' means to die.

What I mean to imply by this example is that children learn
the oral language as a collection of idioms from which they gradually

10. OED, VOL. I, p. 1150 col. 2, under 'BUCKET' sub. 2

abstract the roots of meanings (dependent on the frequency of occurrences of the 'word' and their distribution across a variety of verbal contexts). Let me try to connect this view of language acquisition with the pre-readers' Inclusive word concept:

A WORD is what we call an utterance or any of its parts.

What a WORD means is the meaning of the largest unit that has a specific meaning known to the child (wherein the 'largest unit' is a local collection of syllables), e.g., 'KICK THE BUCKET' dominates the smaller units, 'KICK' and 'BUCKET', so its specific meaning obliterates the semantic content of the included 'words'.

If 'KICK THE BUCKET' is a word in the sense I have just described, is 'KICK' any the less a meaningful word ? No. For that judgment depends upon its use in other contexts and requires a context independent decision. If 'PUPPY' is a word in the same sense, is /PI/ any the less a word ? The performances of the children in this experiment are comparable to those of an English literate adult confronted with idioms. The difference is one of nomenclature. We use the word 'idiom' to describe a phrase such as 'KICK THE BUCKET' because we have a more restrictive concept of the English word. Note that the use of the structure described is adequate for the child's experience of the language as an oral/aural medium.

If a child's primary experience of language, as communication, is so dominated by idiom as I have portrayed it and if, as the results

of this experiment show, the child's word concept is inclusive, what would be the appropriate response for a child confronted by the checker task ? Specifically, let us ask what data from this experiment and otherwheres related to the checker task we should try to explain. From this experiment, two results:

1. the existence of phrasal and syllabic strategies.

2. the different patterns of judgment found in utterances 1 through 6 (minimal functor effect) and in utterances 7 through 12 (definite functor effect).

I also address an anomalous result reported by Holden and MacGinitie:

"...'the book is in the desk' was segmented as 'the book / is in / the desk', perhaps as a result of spontaneously imposing a rhythmic pattern on the utterances...."

"...the child's sensitivity to the rhythmic aspects of an utterance may indeed influence the way he segments it...."

"...whether some responses are in fact based on rhythm and what characteristics of the sentence, the child and the experimental situation increase the likelihood of such responses are questions that remain to be investigated...."[11]

Let the discussion proceed from this question: how do you know what is important in heard language ? One knows what is important either

11. Child's Conception of Word Boundaries, p. 554

because it is topical or emphasized. Contrast:

> The bird flew by the window.

> The bird flew through the window.

The point of this example is that function words are rarely emphasized
but that, when important, they are emphasized by the obvious mechanisms
of the language, e.g., stress, intonation. Imagine that you don't know
how to read and that you have a very liberal, i.e. inclusive, word
concept. Would you not assume that words are whatever is important in
an utterance ? I call this the emphatic strategy of interpretation
and claim it explains the rhythmic sensitivity cited by Helden and
MacGinitie. Rhythm, no less than stress and intonation, is a powerful
force for emphasis in English. Contrast, for example, these precipitate
anapests of Byron:

> "The Assyrian came down like the wolf on the fold

> And his cohorts were gleaming in purple and gold...."

with the diurnal anapests of Blake:

> "Ah, Sun Flower, weary of time,

> Who countest the steps of the Sun...."

I find it very easy to ignore those little words between the accents in
Byron's verses, but Blake's slower rhythm invests every syllable with
importance. If the child's word concept is as liberal as I have described
it and if his interpretive strategy is emphatic, how could one not expect
rhythm to profoundly affect his judgment ?

If you undertake counting words, depending on the level of analysis counted you will either declare every sound a word (as Kevin and Gonzalo did) or you will count only the emphasized semantic units, however you perceive them under the tangled influences of your own understanding and the prosodics of the presentation (so the other 6 non-readers seemed to do). I find both the phrasal and syllabic strategies make sense given the Inclusive word concept.

Why did the functor effect appear only in utterances 7 through 12 ? Utterances 5 and 6 were very hard for the children to repeat. For example:

Ex. 51 Bob: "Bad men often kick small dogs".

Kevin: Men often... always kick small...nah.

Bob: Let me say it again. "Bad men often kick small dogs".

Kevin: Men often kick small dogs.

Bob: You want to say it one more time ?

Kevin: Bad men... awful ?

Bob: Often.

Kevin: Often kick small dogs.

Bob: Very good. You want -

Kevin: (interrupting) Men....

Bob: I'll tell you what, Kev.... Let's try it over again. "Bad men often kick small dogs".

Kevin: "Bad men often kick small dogs" (and taking checkers) /BAD /MEN /OFTEN /KICK /SMALL /DOGS /.

The number of omissions and changes in words showed how much trouble

the children experienced in reproducing "Some grown-ups never watch TV". That very difficulty of the utterance led to my repetition and emphasis of all the elements of the sentence. It is to this experimental fact that I ascribe the reduced contrast between the performance of the children with phrasal and syllabic strategies on utterances 1 through 6. Children can count the content items of an utterance if you demand they reproduce them. They fail to count the subordinate elements of embedded structure. Has that phenomenon been explained ? No. Let us proceed to do so.

The conclusions we have to explain the functor effect are:

1. the Inclusive word concept.

2. the emphatic strategy for deciding what in an utterance is a word.

3. the notion that a child's learning of language is profoundly centered on idioms from which 'words' (as adults understand them) are abstracted based on their repeated occurrence in various idioms.

This last point needs a little more probing. As adults, we tend to focus on 'words', those roots of meaning or centers of content. What about function words ? Consider the phrase 'in the house'. What parts of that phrase would occur with the greatest frequency and in the most various contexts ? Not the contentive 'HOUSE', but the residue of the phrase 'IN THE'. What we consider phrases are primarily variablized

idioms, the variablized portion being filled by a content word and
the idiomatic residue usually represented by catenations of the
function words. The striking characteristic of function words is
that there are, relatively, so few of them in comparison with the
numbers of content words in English. Word count data from Wepman
and Hass (1969) for the production vocabularies of six year old
children establish their ubiquity. The rank ordering within the
thousand most frequently used words for the function words of this
experiment is the following:

AND	1
THE	3
A	5
TO	6
IN	14
HER	23
OF	27
CAN	46
THAN	-- (not appearing)

I conclude that these function words in all their idiomatic combinations
are very well known to the children and that the total number of combi-
nations for all function words is small. Why is the point important ?
If attention flows to those parts of an utterance with greatest potential
for disambiguation, must it not rest at the loci of contentives ? A
content word can tell you which one out of a million such it is; a
string of function words will tell which one of a thousand it is.

Pursuing this point further, if one considers semantic context, how much more nearly redundant are the function words. For example, contrast:

THE BOYS SWIM --- --- POOL.

THE BOYS SWIM IN THE -----.

How many more ways are there to complete the second example than the first, from the 'all-together' to the 'Zuider Zee'. It is much easier to infer 'in the' from BOYS, SWIMMING, and POOL than it is to infer 'POOL' from the boys swimming. Disambiguation is the revelation of meaning in an utterance. What more potent force is there for emphasis in an utterance than meaning ? None, I would say. If a child assumes in a discussion he will apply his label 'word' to what is emphasized in the utterance, should he not center his word judgments on contentives ? Such, I believe, is a fair description of the functor effect.

What about the syllable counting strategy ? How does one explain that ? Think of the teaching in kindergarten. The primary reading-readiness skill being taught these children was the letter to sound correspondences. This was one of the tasks they confronted every day in their work books. The point is that this analysis of letters and sounds focussed the children's attention on the minutest elements of the language. Gonzalo must have believed them very important. Kevin, in attempting to read, pronounced the sound of

each letter and read no words. He was obviously convinced that
letters and their individual sounds were the key to gaining command
of the language.

An alternative explanation is that the syllabic strategy
represents a more primitive response to the task than the phrasal.
The children employing the syllabic strategy would then be judged so
unsophisticated that they rarely complicated their idea of the task
by connecting the idea of meaning with the concept of words.
This interpretation would be compatible with the fact that the
justifications of Kevin, Gonzalo, and Tina (who most exhibited the
syllabic strategy) were dominated by arguments of the Inclusive
class. I prefer the former interpretation to this one, for reasons
which will be evident shortly, but find no data in the results to
exclude the latter interpretation.

The perspective just described is what I call the IDIOMATIC
theory of language. If a child's behavior is described by the
phrasal or syllabic strategies and an Inclusive word concept, I
would say that his ideas embody such a theory. Note that this is a
possible child's theory of language. It may or may not reflect the
reality of language.

The primary failing of the Idiomatic theory is that it is
partial; it by no means covers all the data of the experiment. Consider
the extensive conflict between explicit and implicit judgments. Consider

Lauri's denial that 'OF SODA' is a word and the frequent denials that function words are words. How are these to be explained ?

Children's experience of language is at least of two kinds: first, the language is experienced as a tool of communication (the idiomatic theory generally describes their contact with language in this aspect); secondly, children experience language as a topic of instruction, both formal and informal. I advance to cover this aspect of the child's experience what I call the AGGREGATE theory of language. This is a second child's theory of language. Under this theory, the language is composed of independent things, called 'words', each of which means something by itself. There are also things you can say that mean nothing, e.g. 'GENK'; those are not words. There are other sounds you use when you talk or put words together, e.g. 'OF', but they also are not words because they are not meaningful.

The primary characteristic of this view of language is that the idea of meaning is context free. Secondly of note is the major nominal bias of the theory, i.e. words that are meaningful are usually things. This is an artifact of the child's experience and not a matter of logic. This characteristic may explain Lauri's denial that 'OF SODA' is a word even though she admits that 'SIP' and 'SIP OF SODA' are words. Consider this contrast:

I'll go today.

I'll go by sundown.

One would expect that a child with a limited Inclusive word concept would admit that 'TODAY' is a word and deny that 'BY SUNDOWN' is a word. Since the criteria by which a sound is judged a word are either that it means something, by itself, or might be a name, if this is the theory by which direct judgments of wordhood are made, the source of homophonic confusion is explained. But why is homophonic confusion not a problem in children's interpretation of an utterance ? Because they understand the spoken language as idioms.

Note also that although these theories of language are distinct, there is no prohibition against their coexistence, or even against words, learned as meaningful entities, being substituted as elements in the variable slots of idioms-become-phrases. Thus, the two theories of language may communicate with each other. Why, then, do they not conflict ? The aspect in which they are incompatible is their criteria for wordhood, and children are not challenged in normal discourse to address at all the question of what a word is. But when children are challenged to judge wordhood by different techniques, each tapping the judgment of different theories, the theories do conflict, as the results of this experiment demonstrate. A second difference between the theories is that in the Aggregate theory words are units of meaning which may be assembled into other units of meaning without losing their integrity, e.g., the word 'SODA' may become part of the word 'SIP OF SODA' and contribute its signification

to 'SIP OF SODA'. Contrast this aggregation of meaning with the semantic obliteration of subsumed meaning in idioms, e.g. the meaning of 'KICK' is obliterated in 'KICK THE BUCKET'.

The word concept embodied in the Aggregate theory is compatible in the main with the more catholic Inclusive word concept. The standard word concept is different. Let me describe it thus:

STANDARD WORD CONCEPT:

Meanings are what's important in heard language. In written or printed language, knowing what 'words' are is also important. A word is something you know is a word (there are several ways you can tell if an item is a word or not). If you decide something is a word, it can't be part of another word at the same time. What you are talking about or reading helps you tell whether a sound is part of one word or another.

The standard word concept distinguishes between the heard and read language, adopts the word concept embedded in the written history of the language, and imposes it upon the idiomatic basis of the heard language. Why does this change take place; why does it occur at this point in the development of the child's understanding of language ? The resolution embodied in the standard word concept is required because the Idiomatic theory of language, adequate for the comprehension of utterance, fails in the written language. It fails, not because there are no idioms in

written language, but because the prosodics which disambiguate the homophonic ambiguities of utterance are entirely eliminated from the written language. It is at this point that the burden of disambiguation must be carried by other mechanisms: the one I propose is context editing, based on the abandonment of the Inclusive word concept. This abandonment occurs by adoption and restriction of the Aggregate theory's word concept (consider again whether the prohibition against compound words is so bad an intermediate theory). Notice that Tracey, who has nearly achieved a standard word concept as reflected in her performance on the checker task, still gives evidence of the Inclusive word concept in her responses to direct question. This reflects the lag between developing an operational concept, one adequate to the task, and articulating that concept's description for its application to a second task domain. Tracey was also one of two children (the other was Garrett) who used lexical recognition as a justification for deciding that an item was a word. I conclude that in our society at this time it is the confrontation of text, i.e. the challenge of learning to read, that is the crisis forcing integration of word concepts and the development of exclusion rules for disambiguation to replace the information lost when utterances are stripped of prosodics in the written language. This argument concludes the Word Concept Integration Theory, which is my theory of the development of children's theories of language.

How does the Word Concept Integration Theory relate to reading ? Is it a complete theory of reading in conflict with others ? Is it a partial theory ? Or an alternate description which may be largely compatible with other theories ?

Any learning theory has at least three facets: a theory of the domain; a portrayal of the ignorance of the neophyte; and an explanation of why learning is both possible and non-trivial. The Word Concept Integration Theory can be an adequate theory of reading only if it satisfactorily meets these criteria. The strength of the theory is in its portrayal of the ignorance of the neophyte; that is what the body of this paper, Results and Discussion, is about. Because the syllable is a linguistic unit accessible to children, to most from the age of 4 on, and words are made of syllables, it is possible to ask what children think about words and wordhood, to examine their confusions and non-standard theories. Contrast this fact with any attempt to probe children's concepts of the phoneme; since many children, as old as seven years, are unable to segment phonemes from the aural stream of discourse, since they are not consciously aware of phonemes, it is not sensible to ask them what they think about them. Thus children must be seen as empty-headed, and their thoughts and ideas can not be considered. The learner as thinker is left out of the description of the learning process.

Let us follow Harris Savin (1972) in his meta-theoretical discussion of our understanding of reading:

"...Practically all discussions of learning to read
assume that the child already perceives speech as a sequence
of phonemes and that the heart of learning to read (at least
at the beginning, in the CAT-RAT-HAT stage) is quite simply
learning which letters of the alphabet correspond with which
phonemes. If he masters the system of letter-phonemes
associations, then the child will know everything he needs to
know except for the treatment of irregular forms...." [12]

Contrast the poverty of this view of the pre-readers' ignorance with the
richness of the portrayal of the Word Concept Integration Theory. It is
precisly the inattention to the intellectual structure of the pre-readers'
concepts which so confounds those who try to explain why so much of early
education must be devoted to the study of reading. Savin elaborates the
difficulty the prevailing theory has in explaining both easy successes
and surprising failures:

"... many children learn to read quickly and effortlessly.
However, and perhaps surprisingly, given the apparent simplicity
of the skill of reading, large numbers of apparently normal
children do not learn to read, or learn only after an inordinate
amount of instruction...." [12]

"... the prevailing theory of the skill of reading fails
to account satisfactorily for the observed pattern of difficulties.
This theory fails to identify a component of the skill that is
demonstrably lacking in each child who does not learn to read." [12]

12. What the Child Knows About Speech When He Starts to Learn to Read,
pp. 319 - 320.

The Word Concept Integration Theory argues that there is such a
component and that it is reflected in the child's judgments about
wordhood. The delineation of that component is admittedly speculative.
I summarize the speculation thus: the pre-reader's comprehension of
the heard language is dominated by an idiomatic or top-down process
of understanding wherein high level meanings obliterate competing
meanings of lower level elements [this must be the case if children
understand speech despite the massive potential of English for
intra-word homophonic confusion]; to comprehend text, the child must
build up meaning from individual elements, a different process. In
contrast with speech production, where his own intention guides him
in the building of an utterance, the child does not know the meaning
of a reading before he assembles it. Instead of prosodics aiding
in defining meaning, as in heard language, the specification of
prosodics must be deferred until the reading is comprehended. This
specification becomes an additional puzzle because of pervasive,
intra-word homophonic confusion. Escape from these confusions comes
in learning the standard word concept; through restricting the
meaning-centered, Aggregate word concept by rules of exclusion
[including, especially, word specific lexical knowledge]. This theory
explains why learning to read should be hard.

How can it be that learning to read sometimes appears to be
so easy ? Beyond the factors of native endowment and stimulation in
in this child's home which I will not pretend to disentangle, the
child himself may engage in efforts we never notice. The following

anecdote of an analagous case exemplifies the point. Six months ago
I attempted introducing my children to Pig Latin (a word transformation
game Savin discusses [13] in the context of reading and whose use with
pre-readers Gibson and Levin [14] recommend as an aid in developing skills
in sound segmentation). My son, a reader, caught on fairly rapidly to
the transformation (initial non-vocalic phonemes are stripped from
words, blended with an /E/, and uttered after the residue of the word
from which they came, e.g., 'this example' becomes 'is-thay example-hay').
My daughter, a non-reader, showed no good success. Though she was
capable of stripping initial phonemes from words, her Pig Latin
productions were limited to a few one or two word phrases, e.g. ,
iriam-May (her name is Miriam), ot-may e-may. Recently (she is a
beginning reader now), Miriam produced a well formed, perfectly
executed Pig Latin sentence: 'addy-day, ill-way ou-yay et-gay e-may
an-hay utter-bay ife-knay'. Not aware of any intermediate stage
and astonished, I asked her who had been teaching her Pig Latin.
She replied, "I've been teaching myself. I've been practicing in
my mind."

   The least developed part of the Word Concept Integration
Theory is its theory of the domain, the subject to be learned. Implicit
in this paper has been the view that when we refer to reading we mean
a skill many people exhibit for making sense of a string of a set of
specific marks on some medium and that to exhibit the skill you must:

13. What the Child Knows About Speech, p. 322.
14. The Psychology of Reading, p. 552.

1. discriminate between 26 different symbols, the letters of the alphabet, and their variants.

2. use the convention that spaces between strings of symbols segment the set of letters into elements which are individually meaningful.

3. connect letter strings, words, you read with meanings you know.

4. assemble units of meaning from groups of words.

5. subordinate possible sound-based confusions to disambiguation by the conventional representation of words, i.e. lexical word definition takes priority over sequences of sounds.

6. subordinate meaning assembly to replacement of elemental meanings in sequences recognized as idioms.

This is a rather 'everyday' view of what the skill of reading consists. But won't it do for beginners ? I believe it will. Sub-tasks five and six reflect dealing with exceptional conditions. Subtasks three and four are the main task of learning to read. All beginning readers have in common, and to much the same degree, the problem of connecting the spelling of words to meanings they know. Differences in performances by individual children would then mainly reflect differences in their linguistic and cognitive sophistication; by linguistic sophistication I mean their having a sufficiently developed idea of language to permit their understanding of the task of reading; by cognitive sophistication I mean their having sufficient mental control for keeping track of the lexical, aural and semantic elements simultaneously.

The Word Concept Integration Theory is subject to criticism in three main areas: it avoids the question of the interaction of syntax and wordhood; it does not establish that knowing what words are is a necessary condition for learning to read; it does not relate itself directly to any broader perspective on cognitive development. The first and last criticisms implicate issues beyond the scope of this discussion. The second point can be addressed thus: if you know what a word is, if you understand the task of reading as I have just described it in subtasks three and four, if you are not easily confusible, then learning to read reduces to the simple task of the 'prevailing theory'. Since the idea of reading I present is simple, if the child can keep track of his thoughts, viewing language in terms of the standard word concept is sufficient for minimizing the difficulty of learning to read. Learning to read should take time to the extent that a lot of specific additional knowledge must be acquired; this statement is true whether children must learn the spellings of many words or systems of lexical-phonetic correspondence. There is no prohibition that the appearance of reading can not be created by someone with a non-standard word concept. One would expect such a 'reader' to sound out syllables in sequence with a reading nearly devoid of prosodic expression and signs of comprehension. If it is learning to read, in our society, that drives the devlopment of the standard word concept, we should not be surprised to find children pass through such a phase of reading development; we should expect it to be the norm. The question, then, of whether a standard word concept is necessary to exhibit reading skill can be seen as decidable in relation to what kinds of performances are judged to be reading. If one must be able to cope with idioms and

resolve homophonic confusions, the standard word concept is a
necessity for learning to read. Such would not be necessary with
basic readers written, as most are, to circumvent these linguistic
confusions. If one accepts as reading as zombie-like utterance of
a passage without requiring comprehension, the standard word concept
is not necessary for learning to read.

A final question to address in evaluating the Word Concept
Integration Theory is its demand for exclusivity, its competition
with other theories of reading. For any complex process, there may
be a multitude of descriptions at different levels of conceptual
organization, each of which may be fruitfully applied to advance
our grasp of the many faceted process that is the mind at work. For
example, it may be the case that the view of phonemic segmentation
as a precursor of reading readiness propounded by Isabelle Liberman
(1972, 1973) describes a central state difference between those
children who are reading ready and those who are not so. (This does
not, of course, imply that that theory explains the problems children
have in learning to read). The area in which theories of different
levels of conceptual organization compete is the area of application.
For example, in mixing chemicals, or making soup, one rarely need
worry about quantum mechanics, though all three of these levels of
description might validly apply to the same process. For theories
of reading, the application is pedagogy, of which Savin notes:

"... What is important for the teaching of reading,
however, is not whether phonemes play any part at all in

speech perception, but whether they play any conscious (or potentially conscious) part - whether, that is to say, the child can be aware enough of them to make any sense of the things his teacher tells him...." [15]

Learning to read requires making judgments about language. It is essential that teacher and child be able to discuss in mutually comprehended terms what both think. I believe the Word Concept Integration Theory provides a way for teachers to conceive of the child's knowledge and its normal path of development. This is the quintessential value of the Word Concept Integration Theory.

15. What the Child Knows About Speech, p. 323.

The justifications children offered for their judgments, both in their reasonableness and misapplication, are reminiscent of those justifications pre-conservers adduce in various Piagetian experiments. Suggesting that pre-readers are pre-conservers of the word concept is little more than another description of the phenomena witnessed by the results of this experiment. But it is a useful observation if it reminds us that you don't teach conservation as the remediation of a learning deficit, that we should not pick out some specific concept and 'teach at' children till they're bored and beyond. We are not dealing with simple ideas that we can tell pre-readers, with chunks of knowledge that can be inserted in heads. What the child integrates in his mind is a complicated structure he can and should master at his own pace. As teachers, we can hope to provide the pre-reader with two things of especially great value.

The first resource we can provide the child is a set of names or labels for concepts which cover the domain of the language as he will ultimately learn it. This is most important for children who are not exposed to such a vocabulary at home. There is no reason to suppose that a child's vocabulary for describing language should be small. Children learn many words every day; some words they learn as empty sounds and gradually 'fill in' the meaning. The second resource teachers can offer is a set of examples which are memorable for the child and are prototypical of the concepts they exemplify. For example, if a child's

name is polysyllabic, what could be a better example for him of the distinction between word and syllable than his own name is ? My example here also suggests that the best example for a concept may vary considerably from one child to another. The way the child will ultimately understand the concepts is through confronting decisions of whether something is an example of one concept or another. For example, knowing that there are idioms as well as words and phrases, the child might have to decide whether 'jump in the lake' was more like 'kick the bucket' or 'sip of soda'. Through such processes as those, the child will gradually sharpen his own definition of the concept whose name he already knows. Teachers may hope to provide the child with a milieu rich in exemplary data of the concepts the child will eventually infer.

Let me attempt to suggest some activities that would support learning the kinds of concepts the results of this experiment show to be important. I believe learning must be seen for most people as a means and not as an end in itself. We all know how important physical activity is for children. These observations and the importance we all attach to having fun make me suggest a series of games people might play to involve children with language in ways that can help lead them to insight. I do not defend these games as being particularly engaging; I offer them as examples of the kinds of concerns one should have in the hope that others with a richer imagination will improve them.

If there is a major, theory-independent conclusion to draw from this experiment, it is that function words are different from content words. Although well interpreted by children, function words are less likely to be considered words despite their great frequency of occurrence. Because they are not meaningful standing alone, e.g., 'THAN' means nothing by itself, the most convincing demonstration of the wordhood of functors is knowing how to spell them. Witness Garrett's comments about 'TO' in Ex. 44. But what is the best way of isolating function words for lexical recognition ? Tracey's recognition of 'AND' in Ex. 45 may serve as a model for lexical recognition of function words where children don't know how to spell others. Specifically, bracketing the function word with well-known names is what Tracey's discussion suggests. The first two games depend on the salience of children's given names to isolate function words from their immediate verbal context.

YOU BE THE BOSS - Within a small group, children take turns reading a command for the remaining children to perform. The command is formed by the 'BOSS' selecting three cards, two with names of children in the group and the third with a function word on it, forming them into a phrase, and reading it. The BOSS controls the order of terms, and this matters for asymmetric relations, but the arbitrariness of selecting names by cards prevents imbalance in the game. When the BOSS fails to make or read a command, he is replaced. Any child whose name is not recognized becomes the next BOSS. If the function word is not read,

the BOSS is chosen as next in the normal sequence of turn taking.

The skill a child would learn from such a game is recognition of a small set of function words. The idea he may infer is that knowing the spelling of a word is a good way of recognizing it as a word. Such a game could be incrementally elaborated to make it more fun by introducing words for locations and furniture (as well as given names), by the children's pretending to be animals and using their names. The introduction of non-sense lexical strings, effectively used as a 'wild' card, could provide examples for distinguishing between names, content words (locations, furniture, animals), function words (with, near) and non-words.

JELLYBEAN - This game is similar to the last but focusses on a different expansion of the content addressed. One of the themes of this experiment has been an appreciation of the pervasiveness of homophonic confusion JELLYBEAN confronts the child with that problem in a manageable form. Let each child at a table start the game with a small handful of jellybeans (maybe 6). There is also a 'POT' containing a small number of jellybeans in the middle of the table. By selecting cards, the child who is 'it' forms a single command of this form: DIGIT FUNCTOR NAME, e.g. '2 to Tracey' which means Tracey gets two jellybeans from the POT; '4 from Garrett' means Garrett must put four jellybeans in the POT. The children take turns in order, and the game ends when the POT is empty. The children will confront occasionally the homophone couples '2' and 'TO' and '4' and 'FOR'. They will see the lexical distinction discriminates the digits from the words, thus starting the

discriminations they will eventually make between '2' and 'TWO' and 'TO' ("to him") and 'TO' ("to eat") and 'TOO'. The only example from the interviews of this kind of distinction appeared in Garrett's discussion of 'CAN':

Ex. 52   Bob: Is /KAEN/ a word ?

          Garrett: /KEHN/ ?

          Bob: Yeah. We said, "A mother can carry her baby."

          Garrett: Yes. /KEHN/ is a word. It is also a name, "Barby and Ken".

          Bob: Do you know why 'CAN' is a word ? Do you know what kind of thing it is ?

          Garrett: (head shake no).

The third game I propose is intended to provide a reason for distinguishing between syllables and words.

I KNOW A WORD - This is a simplified version of a game my children have played with each other. (I believe it is one my son learned at school). The readers' version of the game has children take turns. The first child says: "I am thinking of a word. It begins with 'D' and ends with 'G'. (The example is for the word 'DOG')." The second child must then guess words meeting that description until correct. For children who do not know how to spell, the simplified version would be this: "I am thinking of a word. It has two syllables. I'll give you a hint." The hint the child provides could be of any sort. Perhaps: "It goes 'meow'," or "the first syllable is 'KIT'," or "the first letter is 'K'."

There is no reason to exclude children's acting out some expression of the word. I expect this game to be an easy one for pre-readers to play. Although none of the children recognized the word 'SYLLABLE' when I questioned them in the interviews, in later conversations Lauri accepted the distinction between syllable and word and applied it consistently to a broad range of words.

A fourth activity, though not formal enough to be called a game and probably restricted to very small groups, is discussing compound words. My image of such a 'discussion' is the smalltalk that children and adults can indulge in when both are together and partly occupied doing something else, such as drawing or playing with blocks. An example from conversations with Tina after the interviews of this experiment, while she was drawing on a blackboard, may clarify what I have in mind:

Ex. 53 Bob: Did you ever hear of a 'SHEEPDOG'?

     Tina: Yeah.

     Bob: I thought so, but now I've got a tricky one for you. Is 'COWDOG' a word?

     Tina: Cowdog? Yeah.

     Bob: It is? What kind of thing is it?

     Tina: A dog that chases cows.

     Bob: Could there be such a thing as an 'ELEPHANTDOG'?

     Tina: (laughing) No.

     Bob: Why not?

Tina: Because elephants are too big...umm... for a dog
             to catch. Unless the hunter kills it and the
             dog grabs it by the trunk and pulls it and has
             lots of help.

The ultimate aim of such discussions would be to bring out the point
that the formation of compound words is a matter of history, that
the dictionary tells you what is a compound word because it is a
record of what people have decided to call words. This opens the
possibility of the children deciding in their community to form
new words and make their own dictionary. (Such would, of course,
be a rather advanced project for pre-readers but might be quite
engaging.)

        The four activities just described are meant to be examples
and should not be taken as covering all the concepts a child should
understand. What is an adequate set of concepts? From the point of
view of the word concept integration theory, the following concepts
appear to cover the domain of everyday language. A child could use
the word SENTENCE for a very long collection of sounds or written
words. LETTERS would be defined by their membership in the
alphabet. PHONEMES is a useful word which means the set of the
distinct sounds in the language; there is no reason children can't
use PHONEMES to refer to the sounds the letters make. SYLLABLES
are the units of vocalization in the language, best defined by
examples of counting the syllables in well-known words, e.g. names.

NAMES, CONTENTIVES, and FUNCTORS are good labels for distinct classes of words children use. We can now see that distinguishing between them is sufficiently important that children should have names by which they can refer to them. PHRASES and IDIOMS can be defined and contrasted as bunches of words with different principles of assembly. The meaning of a phrase is derived from its component words. The meaning of an idiom is not directly derivable from its component words and supersedes their meanings.

Once the child has assimilated names for the concepts of a domain, in this case language, he is capable of apprehending explanations of the confusions possible. True mastery of an area of knowledge is being able to describe all the confusions possible between concepts, to have, as it were, a catalogue of confusions and to recognize them when suffered. We can hardly expect such sophistication of beginning readers, but we can help them by giving them warnings: "Two sounds that are the same might be different words, might even be different parts of different words." We should be sure to alert children to the existence of homophones and tell them that spelling is the usual method of distinguishing the confused items.

Of the terms for describing language whose introduction I advocate, note the following: if you try explaining them to pre-readers and expect them to understand, you will surely be disappointed; however, presented with clear examples of the meanings of this vocabulary, the pre-reader will be able to classify other utterance parts he encounters.

With an adequate descriptive vocabulary for language, the child will be better able to formulate and articulate his growing knowledge of language. I have not tried to define what a WORD is. The child will work that out for himself. With an extended set of more restrictively defined concepts, it would not particularly matter what his concept of a word might be, i.e. whether it be aurally, lexically or semantically based, because at need he would be able to refer to units of speech or text with even more precision that the general word 'WORD' allows.

To the extent that verbal context and ambiguity have been important elements in the Word Concept Integration Theory, it is a legitimate question to ask what can be done to help children develop sensitivity to context. I have no suggestions of whose value I am confident. I can offer, however, some anecdotal information which will help limn the dimensions of the problem.

A short curriculum at table in my home has been one of telling jokes and, since my children's repertoire is quite small, listening to them retelling jokes told them. The first, most primitive was:

Jokester: You know what ?

Victim: What ?

Jokester: That's what.

How countless the times I've regretted introducing that joke to my children. It did convey to them, at least, this idea: a joke is a verbal exchange as a consequence of which at least one person laughs.

We progressed rapidly to the well known 'KNOCK-KNOCK' species of jokes. This example may be considered the prototype:

Jokester: KNOCK-KNOCK.

Victim: Who's there ?

Jokester: Boo.

Victim: Boo who ?

Jokester: Cry baby, cry; put you finger in your eye.

The relevant fact to focus on is that the joke hinges on a switching of the verbal context. The expectation is that the response to "Who's there?" will be a name. When the frustrated victim catenates an incomplete or an unfamiliar name with the query 'Who ?', the set up pun, i.e. a planned ambiguity, traps the victim into saying some meaning he did not intend.

The children's initial reaction to the KNOCK-KNOCK jokes was profound non-comprehension. My son began to catch on some few months after learning to read. My daughter, though she is a beginning reader, even now does not understand such jokes. The best illumination of her partial comprehension comes from examining which features of jokes are imitated in jokes she makes up. Here is an original joke followed by two imitations:

Jokester: KNOCK-KNOCK.

Victim: Who's there ?

Jokester: Olive.

Victim: Olive who ?

Jokester: Ah luv you.

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Jokester: KNOCK-KNOCK.

Victim: Who's there ?

Jokester: Pickle.

Victim: Pickle who ?

Jokester: Pickle you.

Jokester: KNOCK-KNOCK.

Victim: Who's there ?

Jokester: Booby.

Victim: Booby who ?

Jokester: Booby you.

These two examples indicate no sense that the response to "Who's there ?" should be a name. The appearance is that she senses the joke as a verbal ritual which permits one to attribute some undesirable characteristic to the victim , i.e., 'you are a booby'. There is no evidence that she is even aware of the potential ambiguity exhibited in 'Olive' and lacking in 'Pickle' and 'Booby'.

If an appreciation of ambiguity usually develops in our society from learning to read, it should not be surprising that a beginning reader does not have a good command of puns. If there be a moral in these last comments, let it be this: we should not expect children to pluck out the heart of language's mystery for the price of a few puns or games. Even though we can shape the environment for focus on central concepts and enrich it with clear examples, the true understanding that is the goal of education is the result of cognitive growth and that growth takes time.

This discussion began by opposing two images of the child as a learner: one as an empty bucket into whose head knowledge was stuffed; the other, as a person who 'hangs around until he cathes on'. The final image, occurring in the fortuitious explanation of my daughter, is that of an active intelligence who can say, " I've been teaching myself. I've been practicing in my mind."

The section entitled RESULTS AND DISCUSSION presents a detailed exploration of the neophyte's ignorance, an exposition of by how much the ideas of the pre-reader differ from those of the English literate adult. EXPLANATIONS attempts, speculatively, to portray the child's states of knowledge and how he progresses from disparate Idiomatic and Aggregate theories of language to an Integrated and Standard concept of the English word under pressure of our society's demand that he learn to read. EVALUATION focusses on the strong and weak point of the Word Concept Integration Theory, the outstanding value of which is judged to be pedagogical. HELPING CHILDREN LEARN TO READ attempts to suggest some applications of the preceding ideas and some limitations.

Why is learning to read non-trivial ? Because it requires a substantial reorganization of the pre-reader's understanding of language, which is the most important arena of experience for half the lifetime of a six year old child.

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EXCERPT NUMBER	PAGE NUMBER	CHILD	COMMENTS
1	19	TINA	OFTEN
2	20	EHREN	TV
3	20	GARRETT	HER; direct judgment changes checker taking.
4	60	GONZALO	confusion of word and sentence.
5	61	TRACEY	OFTEN; it's easy to tell what a word is.
6	62	TRACEY	BIGGER
7	62	LOREN	BIGGER
8	62	KEVIN	BANANAS
9	63	DEBBIE	BAD MEN
10	63	LOREN	SIP OF SODA
11	64	TINA	SIP OF SODA
12	64	TRACEY	SIP OF SODA
13	64	LAURI	SIP OF SODA
14	66	EHREN	SIP OF SODA
15	67	GARRETT	TV; non-compounding rule.
16	70	LOREN	-PY
17	70	DEBBIE	-PY
18	71	TRACEY	-PY
19	72	TINA	CAN
20	72	LOREN	TO (confused with TWO)
21	74	LYNETTE	TO
22	74	TRACEY	TO
23	75	LAURI	CAN
24	75	TRACEY	CAN
25	76	LOREN	CAN
26	80	TINA	TV; syllable counting argument.
27	80	DEBBIE	BAD MEN; syllable counting.
28	81	KEVIN	ELEPHANTS, BANANAS, CROCODILE; accent counting.
29	82	TRACEY	BIGGER; inclusive argument.
30	82	TINA	IN; inclusive argument
31	83	LAURI	OFTEN; possible names argument.
32	84	LYNETTE	-ING; a possible name is not a word.
33	85	GARRETT	OFTEN; assertion argument.
34	86	TINA	CAN; argument from mother's use.
35	86	EHREN	BANANAS
36	86	EHREN	TV; his mother taught him.
37	88	LAURI	TV; labelling argument.
38	89	LAURI	BAD; exemplifying argument.
39	89	LOREN	IN
40	89	LYNETTE	SOME
41	90	LOREN	HER
42	90	LAURI	SMALL
43	90	TRACEY	BAD
44	91	GARRETT	TO; lexical argument.
45	91	TRACEY	AND
46	93	LYNETTE	TV, COWBOY; non-compounding rule.

EXCERPT NUMBER	PAGE NUMBER	CHILD	COMMENTS
47	94	GARRETT	THAN
48	96	NOAH	-PY; imaginary interview excerpt:context editing.
49	97	NOAH	-PY; arguments rephrased.
50	97	LYNETTE	-PY
51	111	KEVIN	BAD MEN OFTEN KICK SMALL DOGS; how hard it was.
52	132	GARRETT	CAN; knowledge of homonyms.
53	133	TINA	SHEEPDOG; COWDOG; ELEPHANTDOG.