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ABSTRACT
This paper will outline some of the ways in which the language of the test instrument can be a factor in affecting the performance of a given child or group of children on a test. In tests of quantitative intelligence, mathematical skills, conceptual knowledge, readiness and aptitude, it is not reasonable to think of the language of the test as a neutral factor. It is with such tests that this paper is especially concerned. Particular lexical items used in a test may affect comprehension and result in false interpretations of the test performance. In analyzing the language of the test, tester and the language of the child, this paper has pointed out some ways in which children's test performance can be influenced by linguistic variables. (Author/LS)

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CENTER FOR THE
STUDY OF
EVALUATION

UCLA
Graduate School
of Education
Los Angeles, California

THE LANGUAGE OF TESTS FOR YOUNG CHILDREN

CSE Working Paper No. 7
February 1970

CENTER FOR THE STUDY OF EVALUATION

UCLA Graduate School of Education

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THE LANGUAGE OF TESTS FOR YOUNG CHILDREN

Graeme Kennedy

CSE Working Paper No. 7

February 1970

Center for the Study of Evaluation
UCLA Graduate School of Education
Los Angeles, California

OVERVIEW

It is very likely that many young children attempting to take aptitude and achievement tests do not correctly comprehend the general instructions, let alone some of the individual test items. For example, children of grades one and two, attempting the California Achievement Test, received the instruction -- *Do not turn this page until told to do so.* While this is a simple, straight-forward instruction for an adult, it can be incomprehensible for a child of six years, because this sentence, unnecessarily, includes at least three linguistic devices which recent studies of comprehension have shown to be difficult for young children. First, deletions have been shown to affect children's comprehension adversely. Thus, *until told to do so* would almost certainly be easier in the undeleted form-- *until you are told to do so.* Second, numerous researchers have shown that sentences in the passive voice are much harder for children to understand than sentences in the active voice. Thus, *until (you are) told to do so* would undoubtedly be easier in the form--*until I tell you to do it.* Finally, the presence of both a negative and the temporal conjunction *until* in the sentence would cause some children to hesitate in comprehending the sentence or to misinterpret it altogether. Thus, *Do not turn this page until...*would almost certainly be easier in the form *Turn this page (only) when....*

This paper will outline some of the ways in which the language of the test instrument can be a factor in affecting the performance of a given child or group of children on a test. Though format, cognitive complexity of a task, memory load, and conceptual demands also affect comprehension, these non-linguistic factors will not be discussed here.

In most tests, language is treated as if it were a neutral vehicle by means of which task requirements are communicated to the person being tested. This person, in return, reveals his cognitive skills, knowledge, aptitudes, and/or achievement with specific verbal or non-verbal behaviors. Although language is never really a neutral vehicle, language difficulties for certain types of tests are probably not very great in that the task requirements do not involve complex instructions for each item. For example, in the Illinois Test of Psycholinguistic Abilities there is good reason to assume that language is a relatively neutral factor in affecting test performance. In this test, certain psycholinguistic abilities rather than specific achievements are being assessed and there is a minimum of linguistic complexity and variation in the task instructions. Similarly, in certain tests of verbal intelligence, in which the factors constituting verbal intelligence are not clearly understood, the test instrument as a whole, including both task requirements and the language used to convey these requirements, may be a self-authenticating instrument with prognostic value.

However, in tests of quantitative intelligence, mathematical skills, conceptual knowledge, readiness and aptitude, it is not reasonable to think of the language of the test as a neutral factor. It is with such tests that this paper is especially concerned.

In the typical test situation with children, there are three major language users involved.

1. The test designer (an educated adult).
2. The child.
3. The tester (presumably an educated adult).

To the extent that the language of the test does not match the language development and the dialect of the child, and to the extent that the speech of the tester does not match the speech with which the child is familiar, the child's test performance will be influenced adversely.

THE LANGUAGE OF THE TEST AND THE LANGUAGE OF THE CHILD

These may differ on both developmental and sub-cultural grounds, and will be discussed separately.

Developmental Differences

Developmental differences between adult and child language affecting comprehension are probably much greater than has generally been recognized. Until recently, views like those of Carroll (1960) were widely accepted. "After the age of six, there is relatively little in the grammar or syntax of the language that the average child needs to learn." However, recent studies of the comprehension of syntax by children from the age of about two to ten, in reasonably simple areas of syntax, have indicated that it is not reasonable to assume that children understand syntax at the same level as adults and certainly not reasonable to conclude that the child knows his language by the time he begins school. Moreover, Carol Chomsky (1968) has noted that even in certain trivial areas of English syntax, there is evidence of highly individual rates of development in comprehension ability.

Very few areas of English grammar have been studied from the point of view of development of comprehension, but those areas which have been studied tend to show that basic linguistic processes are still being mastered at the second grade level, and that some processes are not fully acquired until the age eleven or twelve. For example, Slobin (1966) in a study with children from six to twelve, showed that passive sentences took significantly longer to respond to than semantically equivalent active sentences. That is, *The dog was being chased by the cat* took longer than *The cat was chasing the dog* at all age levels. That this result could not be attributed entirely to differences in sentence length is indicated by other studies which show that passive sentences are both

intrinsically harder, and later in development than active sentences. For example, Beilin and Spontak (1969) report that at first grade level, a test of comprehension of active and passive sentences showed 93% correct responses to active sentences and 75% to equivalent passive sentences. The Ss were required to select one picture from two presented to them to match a sentence they heard. The sentences were very simple, e.g., *Mark hits Susan; Susan is hit by Mark.* When the sentences were made complex with an indirect object e.g., *John gave Mary a book; Mary was given a book by John,* correct comprehension of the passive deteriorated markedly. Whereas 93% of the responses to active sentences continued to be correct, only 23% of the responses to passives were correct.

Test writers assume 100% comprehension of the language of the test, and yet test instructions, test items, and task requirements are typically much more complex than those in the experiment by Beilin and Spontak, where much less than 100% comprehension was achieved by six-year olds.

Another syntactic area studied in recent years is conjunction. Hatch (1969) found that with sentences containing such temporal conjunctions as *before, when, after,* where the order of clauses can be juxtaposed, children up to the age of at least seven respond more correctly and more rapidly when the order of action stated in a sentence is the same as the order of the action required. For example, a child finds it much easier to understand (a) than (b).

(a) *Move a blue piece before you move a red piece.*
(b) *Before you move a red piece, move a blue piece.*

(a) *After you move a blue piece move a red piece.*
(b) *Move a red piece after you move a blue piece.*

Similarly, on a relatively simple task testing comprehension of conditional sentences using *unless,* second graders consistently continue to interpret *unless* as *if* rather than as *if not;* i.e., *Unless you are quiet, we won't go* is interpreted as meaning the same as *If you are quiet, we won't go.* Five-year olds correctly comprehended only about 50% of sentences containing *if.* A study by Olds (1968) indicates that difficulty with sentences containing clauses beginning with *unless* continues to at least nine years of age. The Olds and Hatch studies together suggest that while conditional sentences seem to be consistently misunderstood by five-year olds, some children will have difficulty understanding them as late as nine years of age. (It is worth noting that Olds' subjects were upper middle class boys.)

Both these studies were particularly concerned with comprehension of *if* and *unless.* The most difficult part of comprehending conditional sentences, however, is not associated with *if* and *unless.* Rather, learning to comprehend some of the at least 324 possible verb-form combinations, which in turn can interact with negation in one, or both clauses, poses a major difficulty for comprehension. A comparative study of this problem has not yet been undertaken.

However, tests given to children frequently contain conditional sentences. A case in point is the *California Achievement Tests* (lower primary, grades one and two). In the General Instructions and before each sub-test the children are told - *If you do not know an answer, go on to the next question.* It seems possible that some children of that age will transpose the *not* to the second clause in interpreting the sentence as *do not go to the next question.* In the same instructions, the children are told, *You may do very well even if you do not finish everything.* Again, it seems likely that some children, weak in comprehending sentences containing *if*, will merely respond to the last part of the sentence --*do not finish everything.*

The form of questions or instructions employed in a test is another syntactic area which may seriously affect comprehension. There is a basic grammatical distinction between questions permitting a *Yes/No* answer and those which do not, e.g.,

1. *Is the red one bigger than the green one?* *(Yes/No)*
2. *Which one is bigger?*

For sentence two, a *Yes/No* answer is not possible and such questions are almost certainly more difficult than type one sentences. However, there are also degrees of difficulty for type two questions and instructions, although very little is known about this. (cf., Fodor, 1969; Hatch, et al., 1969). Children respond differently to instructions like

1. *What did X do?*

(one is easier than two)

2. *Tell me about X.*

Similarly, children take a good deal less time to respond to sentence four than to sentence three, even though four is longer. (Fodor, 1969).

3. *Ask him the time.*
4. *Ask him what the time is.*

The growing literature on the comprehension of English comparatives (bigger, more, less, etc.,) and on conservation suggests that poor comprehension of linguistic devices may be the cause of the failure of many children on a conservation task. For example, Donaldson and Balfour (1968) showed that as late as 4.7 years children interpreted *less* as meaning *more* with discrete objects, in a variety of task situations. Rothenberg (1969) indicates that only 78% of children of 4.3 to 6.0 years from middle class homes can consistently respond correctly to both sentences with *more* and sentences with *same*, while another 10% comprehended *same* correctly but not *more*. With black children from lower-class homes only 30% comprehended both, and an additional fifty-two percent could comprehend *same* but not *more*. Rothenberg's conclusion was that even in this apparently simple and straight-forward area of comparison, diffferent children will not respond identically to different ways of

saying the same thing. Thus, while one child will understand a task requirement if the instruction is given in one form, another child will not. Kennedy (forthcoming), in a study with children ages six to ten, found that the various linguistic devices used to make comparisons are hierarchically ordered in difficulty according to whether the comparison is made in terms of equality (easiest), superiority, or inferiority, (hardest). In a comparison task it seems clear that it may be necessary to ask a question in two or more different ways in order to make the task requirement clear to all children.

1. *Does X have more than Y?*
2. *Does Y have less than X?*
3. *Does X have as many as Y?* *etc.*

It should be noted that Labov et al., (1968) in their study of Black Urban Dialect of New York City, point out that problems with comparatives are among the most difficult for speakers of both standard and non-standard English.

So far, possible difficulties in comprehension based on a very small number of rather simple syntactic factors have been mentioned. It is obvious that individual words will also often cause failure of comprehension of test items for individual subjects. Thus, a child being tested for antitude with spatial relationships can hardly be faulted on his "knowledge" if he reacts in bewilderment when he is told to "Put the dodecahedron half-way along the bottom line." Most test writers have recognized this problem and have carefully selected commonly known lexical items in tasks for children. They have not always been careful enough, however, as the following example from the California Achievement Tests for grades one to two indicates: *This game will show how well you can recognize words with opposite meanings.* It is possible that six-year olds will not understand *recognize* and that they will struggle with *opposite meanings*. It is especially noteworthy that *opposite* is used in Section C of the test as *opposite meanings* (i.e., semantically antonymous) whereas in Section D the children are told that there are some words *opposite* a picture (i.e., spatially adjacent). It would not be surprising if some six-year olds were confused or hesitant when faced with such instructions.

There is another important way in which the particular lexical items used in a test may affect comprehension and result in false interpretations of the test performance being made. At the present time there is a growing interest in tests of conceptual aptitude, and here especially language can be a confounding factor, because failure of comprehension of language is frequently interpreted as cognitive deficiency.

There are indications that test writers do not always recognize that a test of a child's mastery of concepts may in fact test only the

child's comprehension of verbal labels, and that there is an important distinction between concepts and verbal labels (cf., Carroll, 1964). Concepts are cognitive classifying constructs formed on the basis of perceptual experience. One learns to classify experience and to label these classifications, not the direct references.

This can be illustrated by considering the comprehension of the quantitative concept which in English is labeled *enough*. The word *enough* labels a concept which people form from experiencing a large number of positive and negative instances of *enoughness*. No single physical example or simple verbal definition can convey the psychological complexities involved in comprehending the concept, which may be labeled with words and phrases like enough, adequate, sufficient, just right, not too much, the right amount, we don't need any more, and so on.

It is important to make the distinction between concepts and the linguistic devices which express them, because, while not knowing labels is undoubtedly a problem for school learning, it does not necessarily imply cognitive deficiency. Presumably a monolingual French child of normal intelligence would fail a test of concepts administered to him in English. When a child, after living for six years in the typically human environment of color, numerical equality and inequality, time, space, etc., performs poorly on a test of certain critical concepts of color, number and so on, it is often implied that there is something inadequate in the child's cognitive capacity and functioning and many conclude that such children are deficient in their conceptual behavior. It rarely seems to occur to those who jump to such conclusions that the children's poor performance might be due to the language of the test which proved difficult to process. When a child is given a test item (e.g., *-Mark the cup which has sufficient water for a drink*) and makes an inappropriate response, it cannot be legitimately concluded that the child has not learned the concept of *enoughness*. Thus, a test which ostensibly tests for knowledge of concepts, but which in fact tests for comprehension of verbal labels, can lead to false interpretations of the nature of the child's performance problems, interpretations which are of educational and personal significance.

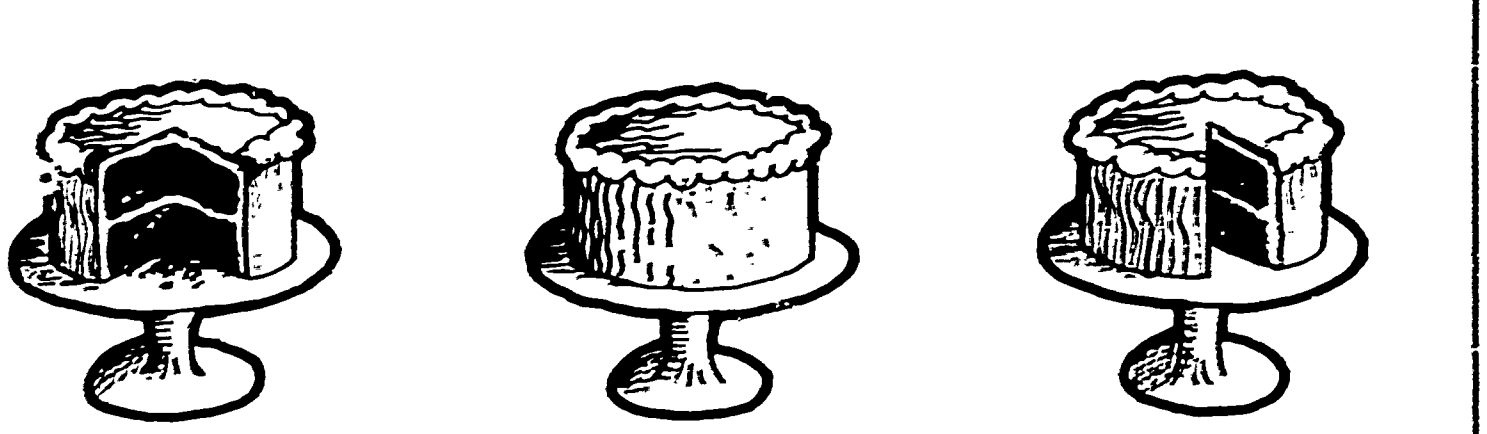
A recent test which illustrates this confounding of concepts and labels and a number of other language difficulties is that by Boehm (1969). "Before he can read,...does he understand what others are telling him?" challenges an introduction describing the test. The test is designed "to measure children's mastery of concepts...It may be used to identify children with deficiencies...and to identify individual concepts on which children could profit from instruction... As many as 60 out of 100 children entering kindergarten may be unable to mark the right end of a line or to indicate the area below a pictured table." Moreover, children from different backgrounds start out "with a different body of knowledge and set of understandings." Such

differences are called "variations in cognitive development."

A close examination of the test, however, shows that these apparently lofty goals--assessing differences in cognitive development--are hopelessly confused with comprehension of English. This can be seen in a number of places in the test. For example, there is syntactic ambiguity in Question 1. The children are asked to *mark the paper with the star at the top*. (The concept being tested is *top*). This sentence is potentially ambiguous.

(a) *Mark the paper which has a star at the top.* (Intended)
(b) *Mark a star at the top of the paper.*

In Question 15 there is possible confusion based on phonology. *Mark the cake that is whole* (*whole* is the concept being tested). The children are presented with these pictures.



It is very likely that some children will hear *Mark the cake that has (a) hole.*

In Question 24 there is possible confusion based on lexical misunderstanding. The children are asked to *Look at the bottles. Mark the one that is almost empty* (knowledge of *almost* is being tested. There are pictures of three bottles presented--one almost full, one half full, one almost empty.) However, if a child who understands *almost* does not understand *empty* which is <u>not</u> being tested he could very easily make the wrong selection.

In Question 28 there is possible confusion based on mishearing function words.
Mark the circle that is at a side of the box could be heard as *Mark the circle that is outside of the box.*

In Question 29 there is confusion of parts of speech on the part of the test writer. Ostensibly this question tests knowledge of the concept *beginning*. It is not stated, but it is to be assumed, that the question intended to test *beginning* as a noun. Yet in the test sentence, the child is asked to *Mark the squirrel that is beginning to climb the tree.*

Beginning is the present participle of the verb and it may be asked why this particular form of the verb was tested and not the more frequent forms of *begin, began, will begin.*

In Question 33, the plausibility of the question and required answer are problems. This is supposed to be a test of *never. Look at the chair, the apple and the cookies. Mark what a child should never eat.* It is quite conceivable that a child would consider he should never eat the leaf and stalk of the apple in the picture, or never eat cookies because they are bad for his teeth.

Question 36 is a test of *always.* (The child sees a picture of a dog, a book. and an ear). Whereas in Question 33, a test of *never*, the child was asked *Mark what a child should never eat*, in Question 36 he is asked to *Mark the one a child always has.* For very similar kinds of tasks the syntax of the test question is obviously different. There are indications that Question 33 is syntactically much easier than Question 36.

Apart from such linguistic factors as these, potentially interfering with particular children's comprehension of what they are required to do, the real confusion of concepts and labels is seen in a comparison of Questions 7 and 32. In 7 the children have to mark on a row of five flowers the *one in the middle.* In 32, they have to mark on a line of three cars, *the one that is not the first nor the last.* Clearly the same concept is being tested in both questions.

Thus, what is essentially a simple vocabulary test is dressed up as a test of cognitive development, the results of which can be highly misleading and could lead to labeling children as having inadequacies in their intellectual processes.

Other possible bases of difficulties about which almost nothing is known, but about which nothing should be assumed, include the effect of sentence length on comprehension and the effect of ambiguity. Menyuk (1969) indicates that with children from three to six years, in sentences of up to nine words, the length of the sentence is not a critical factor in comprehension. Rather the internal structure of the sentence seems to be the critical variable. However, very long sentences, well above nine words, are not uncommon in tests; e.g., *You are to count the number of things in each box in the first row and then draw a line to the box in the second row that shows this number. (30 words) Study the minute hand and the hour hand of each clock. Then write the number that tells the correct time for each clock in the space in the sentence below it. (20 words).*

These sentences, found in the California Achievement Tests for grades one and two, place severe strains on the short-term memory capacity of all children of that age. By losing track of the task requirement, faulty comprehension and a misleading test performance will certainly

result. Apart from the length and complexity of the instructions in the above examples, it may very well be true that six-year olds do not know what a *sentence* is, what the *correct* time is, or even what it means to *study* a minute hand.

The effect of ambiguity, and the child's ability to detect ambiguity, is a matter about which practically nothing is known. Transformational grammarians have pointed out that the ability to disambiguate sentences and to recognize ambiguity is an indication of a person's competence--his knowledge of the rules of the grammar of his language. Further, this ability is used as partial evidence for the kind of grammatical model used by transformational grammarians. What is not known is whether what is ambiguous for adults is unambiguous for children and vice versa. That there may well be important differences is suggested by differences in the structure of associations. It has been established, for example, by Brown and Berko (1960), Ervin-Tripp (1961), Entwisle et al., (1964), that until about seven years, children tend to give syntagmatic associations to stimulus words, whereas older children and adults give paradigmatic associations. That is, when presented with the stimulus word *black* young children tend to give an association like *cat* or *book*, belonging to a different grammatical class, whereas adults give a word in the same part of speech--e.g., *white* or *red*. It is very likely that words which are unambiguous for adults are not so for children whose lexical and semantic systems are much less developed. As a case in point, the Cattell (1950) Culture Fair Test for children aged four to eight years, contains the following ambiguous sentence: *I want you to put the same marks under the same pictures below the line.* An adult will presumably make the common-sense reaction and interpret *same* as meaning *similar* and make marks beneath other pictures which are below the line. If a child interprets *same* as meaning *exactly identical*, (cf., Braine & Shanks, 1965) he may interpret *below the line* as referring not to *the same (similar) pictures (which are) below the line* but rather, as the place under the original pictures where he is to make his mark.

Sub-Cultural Differences

In the previous section, it was noted that poor comprehension could result from particular labels for concepts not being known by certain children. Across sub-cultures and dialectal differences such as those found between Standard American English and the Black Urban Dialect, such difference in verbal labels can be even greater. However, there are other basic problems resulting from sub-cultural differences and some of these will be discussed.

While the differences between adult and child language constitute a kind of dialectal or sub-sultural difference (e.g., in the child's use

of telegraphese), a much greater dialectal difference affecting test performance can be seen in the effect of socio-economic status and subcultural group membership. That sub-cultural differences are important has long been recognized by, for example, attempts to prepare culture-free tests. However, the well known IPAT Culture Fair Test by Cattell (1950) is phrased in terms of Standard American English and thus cannot be considered unbiased or culture-fair for speakers of other dialects. In fact, the prose style of the test is strangely awkward even within the standard dialect. Consider, for example, the following sentence from the oral instructions for Test One for children four to eight years of age. *Now finish the row and go on with the other rows to the bottom of the page, putting always under each picture the mark that belongs under it.* Even if the last part of this sentence is accepted as being grammatically correct, it is nevertheless tortured prose style.

The importance of the test administrator belonging to the same ethnic group as the child being tested has been emphasized by some. However, the importance of language dialect differences on test performance is apparently severely underestimated. In order that a child understand task requirements it is not enough that the test administrator be of the same race and speak clearly. It is important too that he or she speak the same dialect. In addition to the developmental differences between the language of the child and the language of the test, outlined above, if the dialect of the child is different from the standard dialect in which the test is written, the test could be considerably more difficult for him. For example, in the following sentences the same information is communicated in two different dialects, one General Standard American (G.S.A.), the other, the Black Urban Dialect of N. Y. City as described by Labov et al., 1968. It should be emphasized that these differences are syntactic and are in addition to the phonological differences between the two dialects.

G.S.A.: *He's always doing that (He does that all the time).*
B.U.D.: *He be doin' that all the time.*

G.S.A.: *It isn't always her fault.*
B.U.D.: *It don't be always her fault.*

G.S.A.: *He's taller than you.*
B.U.D.: *He's more taller than you.*

G.S.A.: *He can run as fast as I can.*
B.U.D.: *He can run the same fas' as I can.*

G.S.A.: *She has the same accent as her mother.*
B.U.D.: *She got the same accent of her mother.*

G.S.A.: *I know he won the most awards in track.*
B.U.D.: *I know he was the most award winner in track.*

G.S.A.: *When you watch a game, you don't get as much fun as you would if you were acually playing it.*

B.U.D.: *When you watchin' a game, you ain't getting that much fun than what you would really be playing it.*

These differences may seem to be trivial but are not, since they are syntactic and thus involve the basic structure of the language. What seems probable, furthermore, is that the cumulation of differences, however slight, in sentence after sentence can increase processing time for a person who is not a native speaker of that dialect, and if the differences are too great, create inaccurate processing, if not complete lack of comprehension.

The examples given above are mostly of simple short sentences, and the difficulties for a child of six years speaking one of the dialects and being tested in the other, can only be guessed at. As was noted, the differences above are syntactic. Across sub-cultures there are typically different distributions of the lexicon as well which will compound the difficulties. It is hypothesized that this effect can be expected to occur for urban black children being tested in the standard dialect or for white children being tested in the black urban dialect.

THE SPEECH OF THE TEST ADMINISTRATOR

In any test in which the instructions and/or the specific test items are orally administered, the speech of the examiner can have an important influence on comprehension. In addition to obvious dialect differences between the adult and child, a potential difficulty lies in the speed of speaking and the quality of enunciation. Most testers are undoubtedly aware of these hazards, and take the precaution of speaking both slowly and clearly. Many tests also require the tester to read each item twice, and this appears to be the standard procedure for attempting to ensure that the subject hears the question and knows what is required of him.

However, there are usually several or many testers used to test a given population and it is almost certain that no two will be identical in speed and clarity. Yet it is clear that the faster the speed of delivery, the less time there is for the learner to process what he hears. Also, the speed of speaking is inter-related with the syntax of the sentence. Two sentences of identical length can take significantly different times for the hearer to process. For example, sentence (1) takes longer for children to process at least through nine years of age. (Kennedy, forthcoming).

1. *She has less books than pens.*
2. *She has more pens than books.*

While the two sentences take the same time to utter as part of the continuing stream of speech, the increased processing time required by the first sentence may cause certain subjects to lose track of subsequent parts of the utterance with a consequent breakdown in comprehension.

(cf., Macnamara, 1967). This appears to be the case with comparatives, and it is only possible to guess at how widespread and far-reaching this may be across the whole range of syntactic complexity.

It should always be remembered that the comprehension of speech is largely on the speaker's terms, for it is he who determines the clarity, speed of delivery, and complexity of the sentences. Because the language development of young children to at least nine years is marked by highly individual rates of progress, the possibility of particular children not comprehending whole instructions is high, because they do not understand, or take a long time to process one word or one part of a sentence.

In addition to this processing-time variable, there is another potential difficulty in speech perception which has its effect in particular with listeners who do not have a complete mastery of a language. This factor is the perception of function words. Function words in English are the two or three hundred words, including determiners, prepositions, auxiliaries, which are usually considered as being different from the open class of content words having greater lexical weight (nouns, verbs, etc.). Although function words constitute about half of all words we utter, they can be hard to hear because they are normally unstressed in English, and yet they are of crucial importance for comprehending. In the following examples, the effect of the underlined function word on the meaning of the sentence can be readily seen. Failure to hear the word in the stream of speech can result in faulty comprehension.

The price went up 50 cents.
The price went up to 50 cents.

It's been done.
It's being done.

Move to the right
Move it to the right.

Put the red block on to the table.
Put the red block under the table.

If the last one was red, take a green one.
If the last one wasn't red, take a green one.

Young children characteristically speak a form of English called telegraphese, omitting many function words, and it may be as late as 10 years that full control of these semantically important words is achieved. Moreover, it should be noted that failure to hear a function word usually passes unnoticed. That is, a listener rarely knows when he has failed to hear such a word, whereas with content words, a listener is usually aware that he didn't catch the word and can ask for the sentence to be repeated.

If the child being tested is not a native speaker of Standard English, it is by no means inconceivable that when presented with a picture and told to *Point to the triangle under the line*, he hears *Put the triangle on to the line*, and reacts in bewilderment.

Even if a particular function word is heard, it is not certain that it will be interpreted correctly because of the importance of suprasegmental phenomena such as intonation and stress. For example, in a recent test of knowledge of concepts, children were given the following item: *See the cat* (points to the cat in the margin). *Point to the cat over here that is the same color.* If the tester hesitated in the middle of the sentence, it is possible that a young child or a non-native speaker of the dialect of the tester would interpret *that* as a demonstrative rather than as a relative, i.e., *Point to the cat over here. That is the same color.* Confusion for the child would seem to be likely.

This paper has pointed out some ways in which children's test performance can be influenced by linguistic variables. It seems highly probable that the results of tests of aptitude and achievement with young children are frequently influenced in ways not directly related to the abilities being tested and, moreover, in an idiosyncratic manner. Much closer attention needs to be given to ensuring that the language of tests, particularly for young children, matches both on developmental and dialectal grounds, the linguistic competence of the children being tested, and that children's abilities to perceive and process test instructions and items spoken by an adult are not over-estimated.

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