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# Assessing What Every 5-Year-Old Should Know

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**Assessing What Every 5-Year-Old Should Know**
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**Session and Project Overview**

Peter deVilliers:

In this session we're going to talk about assessing language skills in 5-year-olds, basically assessing language skills in 4 to 8 year olds as it turns out, simply to introduce you to the area. This is part of a substantive project involving collaboration between Harry Seymour and Tom Roeper at UMass and Jill deVilliers and myself, Peter deVilliers, at Smith College. It is funded by the National Institutes of Health, trying to develop a comprehensive test of language functioning in children between the ages of 4 and about 8 to 10, and in particular, trying to develop a test that is dialect neutral. I will talk a little bit about the particular goals of that, but first of all I want to acknowledge a large number of people who are working on this project. The first names here are

research assistants, graduate students, and post-doctoral students at the University of Massachusetts who have contributed a great deal to both the design of the materials and the initial testing, and, in particular, to Barbara Pearson, who is the project manager.

So, what are the goals of the project? Two years ago in San Francisco at the ASHA conference, Tom and Jill and I gave a seminar like this about what every 5-year-old needs to know. What we pointed out then is that what we're trying to do is identify critical features of language that develop in the period between ages 4 and 7, just in the preschool and early school period that are critical for early schooling and for literacy development. We have basically four goals for this project. One is to develop an assessment of what we're calling deep, not surface, features of language that are critical for language acquisition between the ages of 3 and 7. We want to identify <u>critical principles</u> of language, those that have to do with fundamental phonological processes that the child must have, syntactic processes that the child must have, semantic skills the child needs particularly in acquiring lexical and semantic knowledge, and critical pragmatic features. Secondly, we are trying to determine <u>developmental features</u> of language that are acquired over this period between the ages of 3 and 7. So we are looking for assessment that provides us with information about growth and knowledge and use in these children. Thirdly, we're trying to determine valid neutral features of language that will <u>not discriminate</u> against children who are dialect speakers, in particular, those children who are speakers of African-American English dialect. And finally, we are trying to identify features and ways to assess them, but <u>differentiate</u> between children who have a disorder or delay in language acquisition and children who are acquiring the language on the normal time table, whether they are dialect speakers or

not.  So, this is a very ambitious project.  These are the four D's that we're looking for.

We're trying to assess <u>deep features</u> of language.  We're looking for <u>developmental</u> <u>trends</u>

during this period of time.  We're trying to assess valid neutral features in a dialect-

sensitive way so that it's <u>not discriminating</u> against children who are dialect speakers.

And we're trying to determine features of language acquisition in this period that will

<u>differentiate</u> those children who have language problems.

So, what are we going to talk about today?  Well, we have a tag team coming on.

I am going to start off and talk about some examples of pragmatic skills that we are

assessing.  Jill will then talk about some interactions between pragmatics, semantics, and

syntax, in particular in the area of wh- question asking and answering.  Tom Roeper will

be talking about complex syntax acquisition and assessment in this period, in particular,

grammatical features of exhaustivity and distributivity.  He will explain what those are.

And then Harry is going to talk about how these items, the example items that we can

show you today, differentiate between children who are delayed and disordered and

children who are acquiring the language on the normal timetable.  So, it will be a look

back at these features of language that we will have talked about in the first three

presentations.

**Pragmatics**

Looking at pragmatics, we have identified four central pragmatic skills for

assessment in this period of time that are needed as the child approaches schooling.  The

first one of these is what we call question-answer method, and that is, being able to ask

and answer the right question when you need specific information or when you need to

provide specific information;  the second is to be able to uniquely specify the things

you're talking about, reference--being able to identify for your listener what it is you are talking about in telling a narrative, for example; thirdly, to be able to link meaning across reference and events. Examples of those are the use of articles and pronouns, the use of temporal markings in narrative discourse, and the ability to do that in extended turns, like in telling a narrative; and then finally, being able to identify and take more than one perspective on events, a critical skill in, again, being able to tell narratives, or being able to understand speech acts in terms of what someone intends when they use language and what you need to take into account when you're using various kinds of speech acts in communicating.

So these are the pragmatic skills that we've identified for the assessment that we've been developing. Jill will be talking about the question asking and answering items and uniquely specifying reference, or reference specification. I won't be talking about that particular subtest that we've developed. I talked about that yesterday in the presentation that we had about this test. But I will be talking about items three and four: 1) linking meaning across reference and events, especially in narrative and point-of-view and 2) being able to, in a narrative, or in a communicating role-taking task, to take on the perspective either of the character or the perspective of the communicator in explaining or reporting a communication.

So, I want to give you some idea about the key features of these pragmatic assessments that we have and I am going to show you one of them. First of all, they provide referential support and pragmatic motivation for the forms and functions that the child is to produce. They constrain the range of appropriate responses so that they are much more focused than an open-ended language sample and, hence, they are much more

easily scored at the time of administration.  They retain appropriate communicative

naturalness so that they don't resort to modeling and imitation, but they retain the

communication role that's there in the pragmatics.  They test interaction of semantic and

syntactic forms with the specific pragmatic functions that are being tested.  They sample

a range of simple to more complex semantic and syntactic forms, and you'll see that both

in the question-asking case and in the narrative case.  And finally, we have, in all of these

cases and throughout the assessment, developed picture-based assessment materials so

they require minimal technology and can be administered and scored by a single clinician

interacting with a child.

Narration

Now  I'm going to tell you about the narrative task and about the communicative

role-taking task.  We have developed two narratives like this.  The narratives are based

on picture sequences that we had developed to test children's understanding of the mental

states, in particular, of characters in narrative situations.  There are a number of features

about them I want to point out.  There are two characters that need to be identified

separately. So there are two boys in the story.  The child needs to be able to tell the

listener of their narrative which boy they're talking about.  So you need to identify the

big brother and the little brother or some means of keeping those two characters separate.

So you need reference specification.  Secondly, there are temporal and causal

relationships between the pictures or the events in the sequence, so that the child needs to

express those in the narrative for the listener.  And thirdly, they all involve some critical

aspects of the motivation and cognitive states of the interactors.  It's critical to this story

that the big boy hides his train because he doesn't want the little boy to play with it.  The

little boy sneaks it out and puts it in his toy box without the big boy knowing he's done that. And then the big boy returns and looks in the wrong place for his toy. And so in telling the story the child has to refer to the mental and cognitive states of the characters.

So, to give you some examples of the temporal links, let's look at some data on this set of narratives. This is looking at a group of 4-, 5-, and 6-year-olds; and then looking at a group of 12-year-olds to show what the top end is in terms of this development of temporal marking, linking those events together in terms of their time relationships. The two things that I want to point out to you is, first of all, the use of no links at all, clearly drops dramatically to zero by the time the children are 12. If we plotted that over all the ages, you'd see the gradual decline in that. What else is happening is a changeover from sequences-- the use of "then" and "and then" to string together the events. So that's how children start out at about age 5. Lots of use of "then and then and then" in order to tell the story, being replaced by more complex adverbial clauses. Time clauses like "while," "when," "after," "before."

Now let's look at a group of SAE-speaking children. We are looking for developmental data that shows growth over this time period. There is a decline in "no time" links going from about 15% of children at age 4 and 5 to none of the children at age 6 and an increase in the use of complex temporal marking (using adverbial clauses) over that same time period. The second important thing about these data is the issue about non-discrimination against children who are dialect speakers. This is the corresponding graph from a group of AAE dialect speakers that are matched for their socio-economic background. And as you can see, it's the same. I can put the other one

right on top of it. It's the same pattern in the same period of development. So that's with time marking.

Remember that these narratives are designed to get at the mental states of the characters. We want to see that the child is able to tell a story about the mental reactions of the characters. And what you can again see in that developmental data is that this grows over the period, both from 4 to 5 to age 6. And if you look at 12-year-olds, then 90% of their narratives have references to the complex cognitions – what the characters know and think and believe. So, if we look at a group of 4- and 5-year-olds and a group of 6-year-olds, you see the same data. These are SAE-speaking children. There is an increase in the use of references to cognitive states over this period of time. They're explaining the narrative in terms of what those characters think, and know, and don't know. We want this to be a dialect-neutral test and here is the data for the AAE-speaking children. They fall right on top of each other again. We had exactly the same pattern using these materials.

And last of all, after the child has told the narrative, the clinician asks the child again, once the child has told the narrative to the tester, to go back to picture #5. You'll note that this is a critical picture in terms of the mental state of the character. The big brother is coming back, thinking about his train. He wants his train. So, the child, in explaining what is happening in this picture, really needs to refer to mental states. So, here's the data from reference to mental states in picture 5 in describing events of that event. And it's a comparison again between 4- and 5-year-olds, now up to 10-year-olds looking at children who are SAE-speakers and children who are AAE-speakers. Again,

there is nice developmental growth and a dialect neutral test in that the children are producing the same pattern of development.

Point-of-view

Another pragmatics test looking at the child's ability to take a perspective, is for the child to tell us about a communication that has taken place. So the child is shown a single picture like this and we say "look what's happening here." And then there is a second picture in which a character from the first picture is clearly communicating to someone about that event. And the child is asked "See this boy?" You see the boy in both the pictures, "this boy, what is he telling his mom?" So the child has to report the content of the communication act. This is going to be a report of an event: what the child saw. You can use the same procedure to get at the child's understanding of a question form that might be asked. So here is the single picture of a little girl finding a wonderful cake in the refrigerator. And now the second picture is exposed. That little girl is talking about it to her mom. But now the child is asked "what's this girl <u>asking</u> her mom?" That question constrains what the child has to produce. They have to produce now a direct or indirect question form. They don't report "I found a cake." They have to report a question form. And finally, you have now a prohibition or a negative event and we get interesting responses here to say the least. If you see just this picture, see what's happening. Now "what is the dad telling the boy?" And not, "I'm gonna whip your butt," but we get that. It's usually "don't feed the dog at the table." It's a beautiful item to elicit a report of a prohibition.

So, quickly getting to the data. [preliminary data slide] Question-asking shows development; this procedure's relatively easy for kids, but you get this nice little growth

between ages 4 and age 6.  This is the percentage of trials produced where the child is reporting a question form, direct or indirect.  And here you see the SAE-speakers and the AAE-speakers.  It's nice to find data where the AAE-speakers are actually a little bit better.  Here is the data from the negative events.  You can see the children were actually better on the negative events than they are on the others.  Even the 4- and 5-year-olds are at 85% correct on producing the appropriate speech act in describing what the character is saying.  Here again you have an item which produces no significant difference between the SAE-speakers and the AAE-speakers.

**Pragmatics, semantics, and syntax**

Jill de Villiers:

I'm going to continue talking about some aspects of the pragmatic test, but I'm also going to segue into some work on the syntax part of the test that will also be picked up by Tom Roeper.  Peter mentioned that one of the other pragmatic tests that we have developed is one that assesses whether children can appropriately ask questions.  That is, can they bring their syntax and their pragmatics together to ask an appropriate question?  This is an extremely important skill for beginning school,  that is, knowing what you need to know so that you can ask an appropriate question of an adult.  So, asking questions taps whether the child can figure out what the missing information is, what they need to know and how to ask for it.  And, in general, wh- questions stand in for a missing constituent of a sentence, for example the subject of a sentence, such as "what" or "who," or the object, "what" or "who," the location, "where," the time, "when," the manner, "how," the reason, "why."  These are all the kinds of things that wh- questions stand for.  And we wanted to develop a technique for getting children to ask questions of these

different sorts.  Now it's a notoriously difficult problem to get children to ask questions because, typically, you try to set up a situation and they end up answering the very question you wanted them to ask.  So, we've had to work rather hard in getting this down, but we think we have a working procedure and I'll show you some rather nice data from it.

What we developed was a procedure in which we show the child a picture and then some missing information in the picture.  And we've paved the way with a number of sample cases so the child gets the idea of the game. But it terminates in this kind of a task, where we say to the child "Look, the little girl is painting something.  Ask me the right question, and I'll show you the answer."  So what you've done here is give the child a prompt.  There's something you don't know about that you've got to ask.  And if the child catches on and says "What is she painting?"  that would be the occasion for you to lay down the answer to the question, for example "this."  But if the child fails on this first attempt, if you say, "The little girl is painting <u>something</u>.  Ask me the right question and I'll tell you the answer."  And they start, for example, guessing.  You know, like "I think it's a cupboard," or something.  You can then give another level of prompt at the beginning where you say "Ok, ask me 'what'…".  And then the child hopefully will continue "what is the little girl painting?"

So the beginning of the test, the first set of questions, we have the opportunity to give both a very general prompt that gives the semantic domain and then a rather specific prompt that gives you a particular wh- question word.  And I'll show you a number of different examples of this.  We have, for example, a "what" object question.  Here's one that would occasion, "who." "The nurse is feeding <u>someone</u>.  Ask me the right question

and I'll show you the answer."  And if the child doesn't proceed, you would say "Ask me 'who'…."  And then hopefully the child will say "Who is the nurse feeding?"  And then there's a little humor in the test, so it's not always predictable what's going to be behind the scene.  We wanted to make it interesting for the children.

In the second part of the test, the second set of questions, we upped the ante a little bit.  We don't give them the second level of prompt.  We just say something like, "I'm going to show you the picture.  Ask me the right question and I'll show you the answer."  Here, for example, is a "where" question.  We say, if this is in the first part of the test, "The little girl has been swimming somewhere.  Ask me the right question and I'll show you the answer."  And we have a "where," she's been swimming in the duck pond.  I'm not sure that's very hygienic, but anyway, that's fine.  Here we have one that occasions a "why" question.  "The girl is mad for some reason.  Ask me the right question and I'll show you the answer."  And she's mad because her bike is broken.  So, the children find this an engaging game.  They get into the habit of asking questions.  We're not particularly interested in the format of those questions. So, for example, at the beginning, if they delete the auxiliary or if they have the auxiliary misplaced, if they say, you know, "Why he be mad?", or something like that, that's fine by us.  This is a test of pragmatics.  We're not scoring the morphosyntax or phonology--although, one could if you wanted.

Preliminary results

So let me show you what happens in children between 4 and 9 on the first part of the test where we give a general semantic prompt.  And, as you can see, the data show a nice growth curve, which is one of the features we're looking at.  And also the data show

no discrimination against speakers of SAE, which is a good feature. Also, no

discrimination against dialects of AAE, but I just wanted to give equal time to the two

dialects of English that are spoken. One isn't just a dialect and the other one a language.

Here we have the data from spontaneous wh- production where we just show the picture

with a hole in it and we say, "Ask me the right question." Can they come up with the

right thing to ask? And again this shows nice age growth over time, and, also, equal

performance across the two dialect groups. So, we're very satisfied with this task as a

successful way of eliciting questions of all different varieties of children. They're not all

equally easy. As you can imagine, some are more difficult than others. The "what" and

the "who" are pretty easy. The "why" and the "how" and the "where" are more difficult.

Probably, the "how" is the most difficult of all. So we will have the opportunity to grade

the questions in terms of their overall difficulty.

Complex questions

But I want to talk about the other part of the task, the test, which looks at question

answering, instead of question asking. So, in this case, what we're asking is, how does

the child know what the right answer is, in particular, to a complex question? And Tom

will be picking up a few more aspects of these properties of questions. But, in general,

questions in English involve a movement rule. So, the constituent that is in the question

moves from where it properly belongs in the sentence, if you like, up to the front. So you

ask something like "what did he eat?" or "where did she say she went?" If you were

speaking a language like Korean or Turkish, you wouldn't ask questions in which the

question was up at the front. You'd ask a question like, "he ate what?" or "she said she

went where?" But in English we have this question rule that moves the question up to the

front. And what the children then have to do, if you like, is recover where that question came from, what constituent is it, where did it belong in the sentence structure. Now, notice that there is no limit to the number of words that can intervene between the original site of the question and the question word at the front. So you could ask "where did she say she thought they told her they were going?" Actually, it sounds like the kind of thing parents of adolescents say to one another, right? So, there's no principled objection to how far away a question word can originate in the structure. But, certain structures block certain meanings and this is a very important feature of linguistic knowledge that has been a focus of interest in linguistic theory for the last twenty years or so. For example, if I ask you a question like "where did she say how they were going?", it really can't mean "where were they going." It can only mean "where did she say it?", "where was she when she asked that question?" or "where was she when she spoke that sentence?" It can't mean they were going to Bourbon Street or something. So, this is a feature of movement of questions that certain structures block certain meanings and we can ask whether children understand that feature of language.

So we test this in a couple of ways. First of all, can children answer questions whose site of origin is far away from the front of the sentence, a long distance question? And secondly, can children appropriately block those meanings that grammar universally doesn't allow? So, in the first example, I'll show you this by giving you the following little scenario. Imagine that a woman bought oranges, but she said she bought apples. So, she didn't tell the truth about what she bought. She said one thing, but she actually bought another thing. Then if I ask you "what did she say she bought?" you have to answer what she said she bought, not what she bought. It involves taking into account

both verbs, not just "what did she buy," but "what did she say she bought?" So the site of origin of the question is down at the bottom of the clause structure. And it isn't enough just to answer what she bought, you have to answer what she said she bought. And this is something we studied in children of this age range. I just want to show you a graph of the results. It's something that resolves quite rapidly between 4 and 6. 4-year-olds tend to answer "what did she buy?" They just look literally at the picture and answer what she bought, but they don't answer what she said she bought. But by 5, they're considerably improved and by 6-year-old, they're hardly making any errors thereafter. So, this is something that children learn to get in the late preschool period and, thereafter, they do rather well in answering that question.

Blocked readings

The second example I want to show you pertains to the question of whether children can appropriately block meanings that shouldn't be there in the adult grammar. So I'm going to show you a little story from our test. It's kind of a strange story, but the children enjoy it. I'll read it to you. "These two brothers went to the circus. The clown came and tickled the little boy on the nose with a feather. He sneezed very hard and blew the clown's wig right off. After the circus, they were very thirsty and they went to buy some milk. The little boy drank his milk with a straw, but the big boy drank his milk straight from the carton." And now I ask you a question. "How did the boy who sneezed drink the milk?" The answer is "with a straw." In other words, what you're asking there is 'how did the boy drink the milk?' "Which boy?" --the one who sneezed. You're not asking "how did the boy sneeze?" That's a blocked reading. You never even entertained that possibility in your adult grammars. But if the child just connected wh- words to the

first verb they came across, then they would answer "how did the boy sneeze?" Ok? Remarkably, children don't do this. They understand that question words have to link to the main verb in the sentence, not to the verb in the relative clause. Let me show you improvements over time in answering this question. These are between 4-, 5-, and 6-year-olds. Again, you see nice growth and no dialect difference. The question is what are these errors that children are making at the beginning? Well, let me show you that they are not errors of answering who sneezed or how did he sneeze. You can hardly see that but that's right at the bottom of the graph. Those are the errors that show sort of violations of adult grammar. What they're answering instead are irrelevant things. If they get it wrong, they're not answering the "how did he sneeze" question, which would be the one that would be blocked in adult grammar. So, I just want to point out that these data are evidence that even young, normally developing children have deep knowledge of things they couldn't have been taught. These aren't the kinds of things that anyone sits down with a child and says "by the way, you know, this isn't possible to answer a question out of a relative clause." I mean, you probably didn't even know that until I told you it today. So it's hardly the kind of thing you could have educated your children to know. Children know this by virtue of having sophisticated knowledge of language from the very start and it's true in both dialects.

So, what we're aiming to look at in our test is the development of deep features of language and also features that are important in schooling like question asking and answering. And also, if we do it right, we should be able to do it in such a way that doesn't discriminate against speakers of different varieties of English because all varieties of English behave alike in these regards.

**Syntax acquisition and assessment**

Tom Roeper:

I'm going to carry on from what Jill was talking about, but I'm going to make a general, quick point first. Let's ask the question, where can we find disorders among 5-year-old children, or older, or even younger? What help does linguistics give us in answering this question? I've worked primarily in linguistics. We've been working on it for 50 years. Chomsky has commented "we understand 3% of what goes on in language." So we still have 97% to understand. After we understand that we have to figure out how children acquire it, and after we understand that we have to figure out where there are possible disorders. So, we are just at the beginning. There are a lot of things that can go wrong we don't yet understand. I'm going to outline a few that we're getting our fingers on, but there's a lot more to do. Among other things, I think it's very important to bear in mind that possibly a disorder in language, just like phonology and syntax are different, can be quite separate. One may not have anything to do with the other. A child may understand a lot about question forming, and not understand a lot about the auxiliary system. We need to separately analyze each of these phenomena.

Now let me outline two major points that we can pay attention to. One is the issue of movement. Jill just illustrated that so I won't go into it any further, but I'll allude to it several times because the properties she mentioned were just a couple of them – different kinds of wh- words and origin. But there are many more about wh- movement that we need to pay attention to. A second important notion is the concept of a variable.

It goes all through grammar; it's fundamental to how we use language. The simplest

form would be a form like this – if I said "put your finger here." If you did that, a few of

you might. Good. None of you marched up here and put your finger on my nose. Right?

So for that sentence "put your finger here," you interpreted the word "here" as a variable

notion. It varied according to each person. There's some suggestions, in fact, that

autistic children may not do that, so this is not necessarily something every kid gets right.

The notion of variable is in very simple sentences. Take the word "that." Can you

imagine a 2-year-old coming to another kid's house and pointing at a book and saying "I

have that at my house"? I think they could. Now notice the word "that" is referring to

two different books simultaneously because the book is not in two different houses. So

there's a notion of variables hidden in very ordinary diectic words. It's elsewhere, too.

Notice more complicatedly we find it in expressions like "every," "is every boy here?"

That "every" is used in an English way that's quite different from say Australian

languages. And we can put one quantifier inside of another, one variable inside of

another and say things like "has every child used every color?"

And there are also variables hidden inside those wh- words. And do children

know it? That's the first place where I think there really are possible language disorders.

We have evidence for it. What is the variable inside the "who"? Well, if you went to

court and somebody said "who was in the car the night of the murder?" and there were

three people and you mention one and you didn't mention the other two, you'd go to jail

for perjury. Because if you say "who's in the car the night of the murder?" you have to

mention everybody. The whole list. It has to be complete and exhaustive. That's what

understanding the word "who" is about. You're not a speaker of English if you don't

know "who" has a variable in it.  So, these are the things that we need to really figure out about children.  Do they have these things or don't they?

Let me mention a couple of other things.  I said quantification varies in the world's languages.  Some of them don't have quantifiers inside of nouns.  Instead of saying "every boy has a hat," they can only say "boys always have hats."  They have "always" on the verb phrase instead of the noun phrase.  Secondly, we find there are variations in how the wh- word takes its variable property.  In one case, it can be like a singular, as in "every," and in another case it might be in a plural.  So, for instance, there are dialects that can say "who all," just like "ya'll."  It's a natural part of that system that some of you are familiar with, I think.  And, in that instance, the "who all" may have slightly different properties.  If I say "I don't know who are here" it's a terrible sentence, but if I say "I don't know who all are here" is a little bit better.  That means that "all" changes the grammar of that sentence a bit.

Ok, let's look at the disorder potentials.  One is that a child may just treat "who" as a singular element and answer one thing.  You know "who was at the birthday party?" The kid says "Johnny."  And then the mom says "and who else?" "Billy" and "who else?" Well, the kid isn't refusing to give information to his parent.  The child is not understanding that the question "who?" is asking for a list.  Now, we've talked now about exhaustivity readings.  There's also echo readings and pairing readings.  I'll get to those in a moment when we get to some real examples.

Properties of wh- words

Let me go over for you quickly the general properties of wh- words.  There are many more than I've mentioned so far, but I'm just going to do it quickly because I want

you to have a sense of how complicated this domain is.  First of all, you have to get the internal structure of wh- words.  You have to realize that "what" is a combination of "wh-" and "that."  And "which" is like a combination of "wh-" and "each."  And "where" is a combination of "wh-" and "here."  A child has to do a morphological analysis of each one of these wh-words.  In addition, let's figure out its pragmatic use.  "How" and "why" are used interchangeably in many languages.  A child has to figure that out.  Very often, some of you may have the experience of children answering a "how" question with a "why" answer.  I ask my son "how do you eat ice cream?"  "Because I'm hungry."  That's not so unusual.  Notice the variable property is very much called for in a variety of circumstances.  If you say "what do you need to make a cake," and you just answer "a bowl."  "Well, what do you need to take to school today?" and you say just "a pencil," that's not an adequate answer.  That's the exhaustivity property we've talked about.

Now let me go to a couple of other ones.  When we talk about movement, notice that the moved and the unmoved wh- word are both possible in English but have different properties.  So, for instance, if you say "I bought food" and then somebody says "you bought what?" you say "food."  But if they move the question words in the beginning of the sentence and say "what did you buy?" you don't expect to hear "food," you expect to hear a list of things.  We actually tested that kind of question in this circumstance.  "My name's Mary.  This is me.  This is my brother Tom.  I'm going to tell you what we did last Saturday.  Saturday morning my brother and I were playing with toys."  What were they playing with?  Well, you're gonna say a train set and maybe a bear.  But if you had the next page, "the mother said 'do you want to go to the zoo?'  Tom and I both said 'yes', so mother said 'get ready' and we put on our outdoor clothes."  "They put on their what?"

Then you're just gonna say "outdoor clothes." You're not going to necessarily say "jacket" and so forth. So the question word in different positions asks for different kinds of answers.

The pairing property

Now it may seem to you that it's so complicated to you, that it's hopeless. You can't imagine anybody learning language, right? But there's even more complications. There's the pairing property and it's in a three-word sentence. You don't hear these often, but 3- and 4-year-old kids sometimes understand these things. The father and the boy were having lunch together. You've got to say "well, the dad ate the banana and the boy ate the apple." "Who ate what?" You've got to get two answers for each wh-word, it's got to be exhaustive, and it has to be paired up properly. This is not something anybody teaches you. This is something that springs from your biology, like stereoscopic vision. And the question we've asked is when does this kind of thing happen? When do children understand this sort of a question? This should be familiar to you by now. We asked a question like "Here are three hats and three kids. I want you to ask me the right question and I'll show you the answer." Then we have to see if the child says "Who is wearing which hat?" or "Who is wearing what?" Can they do that? And I bet that you are already guessing that a lot of kids can't. And you're right. Even though it's a three-word sentence. They will give you the answer and you'll get something like this. "Who is wearing a hat?" [Inc. leave out?? Now let me say to you that we do have evidence on these singleton answers that you can get ] (NEED INFO FROM TOM.)

We are interested [these properties] in other foreign languages as well. And that's what you predict. If this is a universal property of grammar, you don't even need to look

at English.  It's not the only location to find it.  You can find it in German and French and any language you name.  "Who is eating fruit?"  You should get "Dad eats the banana, the boy eats the apple."  But very often you'll get a singleton answer and here is the pattern of singleton answers that we find.  We'll find in 3-year-olds, a lot of kids are giving them.  It's going down to very few by 5 and you go on to 12 and it's virtually gone.  So this is a pattern we find among normal kids, but as you may guess, we find it elsewhere too, perhaps in disordered children at much later ages.

Now, how about echo versus exhaustive answers?  Here you can see that kind of answers given for both normal AAE and normal SAE kids.  That's pretty good on both the echo and the exhaustive questions.  That is, they can answer the full list of things, and they know when the question word is at the end of a sentence that they should just answer one.  Now what happens when we ask kids to produce these wh-phrases that I've mentioned to you before.  You can see again here a fairly similar pattern.  Very poor, not so great when kids are starting out at 4 and 5 and 6.  Then it starts to go up pretty dramatically and they do rather well.  Let me put in another slide that gives you the same pattern but with a few of the answers that children gave when they screwed it up.  So we would say to the children "Who, or which person was eating which fruit?"  And here you can see a big difference between the normals and the SLI's.  The SLI kids do much poorer, they continue to do poorly up until the age of 9 and 10 and even up to a little bit towards 12.  But what's stunning about it, is these kinds of answers:

"Who the woman and these boys and girls eating?" Or "What is you doing?"

"Who is eating your food?"  "What food is they eating"  "Who food is they eating?"

In other words, they turn it into two questions rather than one, saying a whole lot more than they have to.  They didn't just say "who" ate "what."  They could have gotten away with three words.  So we find substantial difficulties among SLI kids in handling these double wh- questions.

Now, there are a couple of other things that I wanted to add to this.  And, that is, there's another property of grammar which we've studied elsewhere, and we haven't yet had a chance to explore in depth in this Dialect Sensitive Language Test.  In fact, none of the answers that we obtained from children violate this principle.  And the principle is another movement property that's surprising.  You can't move one wh- word over another wh-word.  So, for instance, if I said "what did Bill buy?"  that would be a perfectly good sentence, but the sentence "what did who buy?" is very strange.  And, in fact, when you look through the data that we have so far, we have virtually no instances of children violating this principle in English.  We've done the same experiment in German, where, in fact, it's possible to say "what did who buy?" and lots of children do it.  So there's something very deep about the different nature of wh- words in English versus German.  Here's a case where the two languages differ, and Germans show the ability at the age of 4, and the English children already know not to do it.  So they understand a very deep property about language and that issue, in fact, is one that is being hotly debated in linguistic theory.  So maybe our work will be a little ahead of them in that respect.

Syntax summary

Ok, to sum up.  What I've tried to show to you is, first, that there are many, many properties of grammar.  There are many more areas where we may yet discover disorders.  There are disorders that persist into the grade school years and that I think, very

importantly, <u>interact with the meaning of sentences</u>. Unlike the simple observation, say, that a sentence is missing an 's' and says "John run" instead of "John runs." You know what the sentence means. But these children are misconstruing, in part, what the meaning of the sentence is. That is a serious problem when you're in a conversation. We've also illustrated a number of ways in which, surprisingly, normal children do excellently at these things. They can get exhaustive readings. They can get echo readings. They can get a lot of these wh- paired readings. So, children do very well at most of these things, even though the phenomena have just been discovered within the last years about properties of English grammar not known before. Nevertheless, there are things they don't do perfectly and we continue to explore what they know and when.

**Differentiating language disordered children**

Harry Seymour:

My role this afternoon is that of a speech-language pathologist. You've been listening to a couple of experimental psychologists and a linguist talk about some concepts that you're probably not completely familiar with, but hopefully you'll learn more about as time goes on because we think they're very important. The title of this talk is 'Assessing What Every 5-year-Old Should Know.' I want to emphasize one word in particular – "'every." Now, we're not here to suggest that the materials we're proposing for assessing language in children will apply to every child all over the world, or every language that every child speaks. What we are implying, however, though, is this term is inclusive, and not exclusive.

As a speech-language pathologist working in the profession now for about 30 years, I've often been looking for the Black child, looking for the Black child in our

textbooks, in our language assessment materials, and often that child has been missing. Now, there are many reasons why the child has been missing, not the least of which has been our capacity, our ability, our knowledge to assess the aspect of language that may be the most critical for determining whether or not a child has a language disorder.  The Black child, historically, has been, in many respects, invisible.  Yet, within the communities where they reside, and your caseloads as SLPs, those children are, nevertheless, disproportionally represented as having language problems.  So, in one respect, they're invisible in our materials.  And, in another respect, they're very obvious and very prominent.  So there's a disconnect there.  And the kinds of work that we've been doing at UMass and at Smith in trying to come up with an instrument that is effective with African-American children involves identifying the essential properties of language that will not discriminate one group from another, particularly children who all speak English.  If we have tools to effectively diagnose language, and somehow Appalachian English-speaking children fail on those instruments  disproportionately , or African-American English-speakers, it's almost tantamount to going into Boston and penalizing a child for "r-lessness."  That would, of course, be absurd.  But it represents a kind of preoccupation by us as SLPs on that which has been more or less superficial about language and highly variable about language.  What we are trying to do is identify the essence, the most important properties that can be effective in dealing with every child or at least every child who speaks English.  My colleagues have pointed out certain properties of language that we have been focusing on.  In summary and just briefly, we can say that they are important for effective comprehension and production of language, regardless of the dialect being spoken.  They're important precursors for schools,

particularly for literacy kinds of skills.  They range from simple to complex.  They reflect

universal principles of language.  These we regard to be very important dimensions.  But

one of the most important dimensions though, for you as SLPs, would be the question

"yeah, well, my colleagues have demonstrated that AAE-speakers, SAE-speakers both do

well on this.  Well, are they so simple that everyone does well on this?"  Of course, our

question is "do language impaired children do well on this?"  And my is role to share a

little bit of information with you with respect to how the Language Impaired group have

been performing on these particular tasks.

Discourse skills

Peter introduced us to some elements having to do with narration.  He pointed out

that we've developed a very nice set of materials to look at discourse skills, to look at

point-of-view reference – things that we think are important and relevant for assessing 5-

year-old children.  Well, he shared the results with you with respect to the SAE and AAE

groups, both of whom were being quite normal.  And as you can see, developmentally

they progress nicely with respect to mental state.  And here we're talking about children

producing references that refer to perceptions, to desires, and being able to take the point-

of-view of the protagonist within a particular story.  But if you can contrast that with a

group of language impaired kids, you can see that there is an important difference.  So,

language impaired kids with respect to these kinds of mental states, do not do as well.

Also, with respect to cognitive states.  That is, taking the point-of-view with respect to

conveying what one protagonist knows and what one protagonist thinks in conveying the

relevance of a story over sequencing events.  Again, there is a dramatic difference

between the language impaired kids and the normal children, both of whom being AAE and SAE.

Another aspect that was discussed with respect to point-of-view had to do with communication roles. That is, children taking the role of another and anticipating and, in a sense, producing speech acts with respect to what one expects a person to say, tell, or ask. And here again, with respect to question-asking, we see a very interesting and important difference between, in this case, the blue line being the disordered group and the other two lines being the normal group. Similarly, with respect to speech acts, see the kind of prohibition event that Peter pointed out. If you recall the illustration with the dog being fed by the child and the subject would have to indicate what the father would have said to the child with respect to the negative event. And, again, the disordered group does poorly in comparison with the normal group.

Wh- questions

Jill introduced us to some concepts having to do with wh- questions and there were two kinds of settings that were described: One having to do with prompting a child to give a wh- question and the other having to do with not prompting the child. And, again, we see that the disordered population does not do nearly as well as the normal population. In the same kind of elicitation, when we ask children to produce wh-questions spontaneously, again we see that the disordered children do not do as well as the normal children regardless of the dialect.

Now, Tom talked about some aspects of complex wh- questions. In averaging the kinds of responses that disordered children gave across a set of wh- complex stimuli, we see once again that the disordered children do not do nearly as well as the normal

children.  And, again, I emphasize when I say normal that we're talking about two dialects of English and they're doing just as well.  Tom mentioned the aspect of wh-questions having to do with exhaustivity.  And, he pointed out that if a wh- question is asked and the wh- word, of course, moves to the front of a sentence, it could act as a variable, and in the example that he gave, we would expect that children would give a list response.  For example, in the example that he showed you where the children were playing with toys.  "What were they playing with?"  The answer should be a list response where the respondent is talking about what each of the children were playing with, as opposed to an echo-type of response "they were playing with what?" in which the wh-word is essentially representing the noun phrase or clause.  And the children don't need to give a list response.  So, in looking at the responses that children gave to this kind of task, we see that, again, the language impaired kids do not do nearly as well and they're more inclined to give an echo response where should give an exhaustive response.

Finally, the last kind of wh- question, or stimuli, that Tom talked about had to do with double wh- questions such as "who played with what?" "who ate what?"  where you have two wh-words and so a child has to, in a sense, do a pairing.  Pair a 'who' with 'who' and pair a 'what' with 'what'.  That we found to be a fairly difficult kind of task developmentally.  And as you can see, the two red lines represent what Tom showed you in that children up to the age of about six or seven still have difficulty with that but then they begin to improve; whereas language-impaired kids remain in a sense kind of bottom level right up to eight or nine years of age.

Clinical applications

So what we hope that we have been able to show you this morning is that there are very important aspects of language that we as speech-language pathologists may not be tapping into perhaps and should be tapping into, if we are effectively to diagnose a child's language problems. I do not say that to suggest that we are doing this to solve a problem with meeting the needs of African Americans or any other dialect. What we accomplished here over the last few years is that we developed materials that should be effective diagnosing <u>child</u> language problems and also providing explanations with respect to what the nature of the problems are likely to be. Many of the kinds of instruments that we now use are capable of singling out children who deviate "x" standard deviations from the mean and therefore we suspect that they have a problem but they provide not nearly as much information as we need about the nature of the problem. We've assembled materials that are comprehensive and we think will provide information about not just how a child performs on syntax but how he performs on syntax in relationship to how he performs on pragmatics, and how he performs on semantics as well as phonology. And I am sure you will agree that's information that would be very valuable in the clinical process.

Thank you.

Questions:

We will now entertain questions that you may have.

Q: Does the test address phonology?

A: The idea here is to develop a full assessment test here that can be used to look at phonology. It has non-real word repetition, it has real word repetition, it has those

specific phonology items, morphosyntax items which are the standard items that most tests have with respect to tense markers and copula verbs, etc. What we focused on today is to look at those other aspects of pragmatics and syntax in particular that are not on familiar tests that people use. In particular these items do not discriminate against dialect users. Where as if I'm testing, I'm testing the Brown's 14 morphemes that Jill pointed out yesterday, that we feel somehow the two of us feel a little bit to blame for this because we were Roger Brown's graduate students, that study all of those morphemes and established the order of acquisition of morphemes. Every test seems to be looking at-- grammatical morpheme acquisition and those discriminate against dialect speakers.

Q: When will the test be available?

A: We have a publication date for our clinical version probably in 18 months. And then we are going to do more finalization with respect to standardization a year or so later. But it is still in the trial period. It is about twice as long as we liked for it to be. It is about two hours to administer. We'd like to get it down to 45 minutes to an hour.

Q: Have you used this with children who have autism?

A: To the best of our knowledge we have not.

Q: Does the test possibly confound picture decoding skills with the language skills?

A: Picture decoding, well I am not sure that we have separated out picture decoding skills and language skills in this test, it is an excellent question. I think that what we can do show that there is development over this age range and it's differential for different linguistic structures which suggests that whatever picture decoding skills have a need perhaps they already achieved by four. But admittedly, when you come to something like the narrative you know the child needs to scan across the different pictures, has to know

something about left to right reading of a cartoon. Those are skills that absolutely we kind of take for granted and we should allow for the possibility a child with limited experience with picture books might not know which direction to go, might need some help, you know, in figuring out what the sequence is supposed to represent.  We hope that those skills are in place before we start doing this.  The question-asking procedure involves precisely trying to assess what's missing from this picture that I need to know about.  And, you know, maybe we're in part also looking at that.  But, presumably that's part of what it is to be acquainted with the pragmatics of question-asking.  So, it's a complicated question to answer and I'm not sure I've done a satisfactory job, but we are aware of it and we hope that, you know, what errors involved is not more than is involved in everyday life of using language.

Q: Why don't you use video for the narrative stimuli?

We have done a range of things with narrative, for example, where we've looked at children retelling stories that was shot on videotape.  They're very similar to this procedure actually, in terms of what they produce.  Part of the problem here is simply an issue of standardization – you want to have a test that has a fairly standard administrative procedure, and one which you can administer easily without a lot of technology.  We would love to have used other kinds of videotape presentation, but it complicates matters considerably.  Our goal was to establish materials for a very wide range of aspects of language, from phonology to pragmatics,  that could all be picture-based and still find good developmental data that we could use to assess children's ability.

Q: Are you collecting data on the disordered? Standard American English as well as African American English?

A: We have data, we just haven't shared it with you today because it's a little sparse right now. We're going to have a more robust sampling within a matter of a few months, but we do have the information. For the most part, the disordered SAE children parallel the disordered African American children except that the numbers are still small that they are a few little blips here and there that we can't explain.

Q: How do you know who is an AAE speaker?

A: That's an excellent question. Of course, that's one of the dilemmas that we're in and one of the reasons we're developing a test so that we can more validly identify children who are African-American speakers, most particularly, who are having problems with their language. The best method approach that we could apply in this case was to rely upon clinicians in the field and folks in the community to identify children that they thought were African-American English speakers. What we did not share with you this morning, but we did talk about yesterday, was that we had a component within the test that has a constellation of features that are clearly identifiable with African-American English. So we use those for the purpose of identifying children who are African-American English, but not for diagnosing pathology. So, when you administer the test there will be certain items that are simply there to identify AAE speakers and there are a host of items such as those you heard about this morning that are more or less obligatory and, you know, should be effectively responded to regardless of dialect issues. So, when the data comes with respect to who's AAE and who's not, we're able to verify and

confirm identifications that were made in the field.  And we're doing that and it matches

up for the most part.


Q: Why have you looked only at low SES speakers?

A: We want to sample the most dense AAE we can find.  And if we were to go to middle

socioeconomic or upper socioeconomic, the representation of AAE would be less.