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Awareness of Language: Some Evidence from what Children Say and Do

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Children begin to reflect on certain properties of language at an early age. They comment on their own growing linguistic abilities--for example, "When I was a little girl I could go 'geek-geek' like that. But now I can go 'This is a chair'," from a child aged 2;10 (Limber, 1973). They reject wrong pronunciations--for example, when a child teased his younger brother by mimicking his pronunciation of *merry-go-round*, "mewwy-go-wound," the younger brother firmly corrected him, "No, you don't say it wight" (Maccoby & Bee, 1965). And they comment on how others, usually younger children, speak--for example, a five-year old, hearing his brother pronounce *spoon*, asked their mother, "Why does he say *coom*?" (Weir, 1966, p. 164).

The study of what children are aware of provides one way of finding out what their conception of language is. But this requires that we first establish what reflective abilities they have, when and how these develop, and what role they play in acquisition itself. In the present paper, I shall review some of the evidence that children are aware of and able to reflect on certain properties of language.

People can be aware of their language at many different levels, from the automatic, virtually unconscious monitoring of their own speech to the rapid switching of languages by professional translators to the detailed analytic work of linguists. The first signs of an ability to reflect upon language begin to appear at about age two. They include:

(i) Spontaneous corrections of one's own pronunciations, word forms, word order, and even choice of language in the case of bilinguals;

(ii) Questions about the right words, the right pronunciation, and the appropriate speech style;

(iii) Comments on the speech of others: their pronunciation, accent, and the language they speak;

(iv) Comments on and play with different linguistic units, segmenting words into syllables and sounds, making up etymologies, rhyming, and punning;

(v) Judgments of linguistic structure and function, deciding what utterances mean, whether they are appropriate or polite, whether they are grammatical;

(vi) Questions about other languages and about languages in general.

Although a list like this makes the study of children's awareness seem fairly straightforward, the criteria for assessing awareness are not always clearcut.

Somtimes it is difficult, for example, to distinguish implicit judgments about language from everyday use. Consider two-year-olds who respond to well-formed commands (e.g., *Throw the ball!*) but not to telegraphic ones (*Throw ball!* or *Ball!*). Discrimination of these two types of command could be the result of awareness to differences in form between them at some level. But equally, it could be the result of understanding only a single type of command. Simply using a language is not the same as reflecting upon it. Older children, of course, are more likely to use explicit judgments about language (e.g., "Only Daddy can say that") and their questions about language are more obviously reflective (e.g., "Is it *ber*-fore or *be*-fore?").

Evidence that children are aware of different facets of their language is scattered throughout the acquisition literature. What I have tried to do is gather together some of the observations that have been made in order to present a preliminary taxonomy of the ways in which children reveal their growing awareness of language--of its structure, sound system, lexicon, and morphology as well as its function and the social rules for its use. Once we have looked at these, I will return to the more difficult problem of what it means to be aware and the role that such awareness might play in the actual acquisition of language.

MAKING JUDGMENTS ABOUT LANGUAGE

Even very young children can make judgments about appropriateness, complexity, and even about possible forms. In this section, I will briefly take up some of the studies pertinent to such judgments.

Appropriateness

Judgments of appropriateness have involved explicit choices of which of two utterances would be more polite, choices of which types of speech go with different roles, and adjustments made by speakers to different listeners. Judgments of relative politeness or niceness in making requests were first studied by Bates (1976). Italian children were asked to request sweets from an old woman puppet, and judge which request was more likely to be successful from pairs such as *Voglio un dolce* ('I want a sweet') and *Vorrei un dolce* ('I would like a sweet'). Children as young as four-and-a-half were fairly consistent in choosing the less direct request as the nicer one, while younger children did not make consistent choices.

In another recent study, Andersen (1977) asked children between four and seven to "do the voices" for different puppets, for instance, a father, mother, and baby in one setting, and a doctor, nurse, and child patient in another. She found that even the youngest children adjusted their speech to differentiate among the three family roles, but did less well on doctor-nurse-patient roles and teacher-pupil roles. Appreciation of how one should speak in particular situations may be present for some children even earlier than four. Some of the diary records report children objecting to inappropriate usage. One three-year old gave up pretending to talk to her uncle on the telephone when her mother used the wrong voice: "That isn't the way. I ain't going to talk to you (3x). I ain't going to talk to you any day (3x). 'Cause you don't talk right. I ain't going to telephone to you any day, 'cause you don't talk right " (Brandenburg, 1915, p. 106).

There have also been a number of studies of how speakers adjust their speech when addressing particular listeners. Shatz and Gelman (1973) found that four-year olds consistently used shorter, simpler sentences to two-year olds than to four-year olds or adults (see also Gelman & Shatz, 1977). This kind of adjustment to the age, status, and even sex of the listener is evidently acquired fairly early (see further Berko Gleason, 1973; Sachs & Devin, 1976; Edelsky, 1977; Snow & Ferguson, 1977).

Complexity

Besides appropriateness, young children also seem capable of judging relative complexity. Shipley, Smith and Gleitman (1969) found that with children between 1;6 and 2;6, those at the one-word stage consistently responded to very simple commands like *Throw ball!* or just *Ball!* but ignored more com-

plex ones like *Throw me the ball!* Children at the two-word stage did just the reverse: they responded consistently to the longer, adult-like commands and ignored the one- and two-word versions. This, of course, is not necessarily evidence of awareness since we are in the borderline area of implicit knowledge inferred from the children's response to instructions.

Somewhat older children, however, are able to make rather similar judgments at one remove from direct responses. Scholl and Ryan (1975) asked five- and seven-year olds to identify the speaker of different utterances by pointing to a picture of an adult or of a small child. The children usually assigned structurally more primitive sentences to the younger speaker, e.g., questions and negatives like *What the cow say?* and *We not go home.* More complex versions of the same sentences, *What can the cow say?* and *We cannot go home*, were attributed to the adult speaker.

Form

Very young children also seem capable of making some judgments about form in the language they are acquiring. For example, Gleitman, Gleitman, and Shipley (1972) asked two-year olds to judge which sentences were "silly" from among a set of telegraphic and full forms, with either normal word order or noun and verb reversed (e.g., *Bring ball, Bring me the ball, Ball bring, Ball me the bring*). Two of the three children not only offered judgments but also volunteered "corrections" of the sentences they found silly (e.g., *Pull wagon → Pull wagon me, Song me the sing → Sing me the song, Fill the mailbox → Put mail in the mailbox, Ball me the throw → Throw the ball*). Although the responses from two-year olds in this task were limited, Gleitman and her colleagues concluded nonetheless that children under three could in some sense already "contemplate the structure of language" (p. 147) (see also de Villiers & de Villiers, 1974; James & Miller, 1973).

Gleitman and her colleagues also interviewed older children between five and eight and asked them to make judgments about sentences, some malformed and some not. These children were willing to accept a sentence like *My sister plays golf* and reject *Golf plays my sister*, just as adults would. And even five-year olds were able to give relevant accounts of what was wrong with most of the deviant sentences. As an illustration, consider the following exchanges between Gleitman and her daughter Claire, aged seven:

(1) LG: How 'bout this one: *Boy is at the door.*
Claire: If his name is boy. You should--the kid is named John, see? *John is at the door* or *A boy is at the door* or *The boy is at the door* or *He's knocking at the door.* (p. 149)

(2) LG: How 'bout this: *Claire loves Claire.*
Claire: *Claire loves herself* sounds much better.
LG: Would you ever say *Claire loves Claire?*
Claire: Well, if there's somebody Claire knows named Claire. I know somebody named Claire and maybe I'm named Claire.
LG: And then you wouldn't say *Claire loves herself?*
Claire: No, because if it was another person named Claire--like if it was me and that other Claire I know, and somebody wanted to say that I loved that other Claire they'd say *Claire loves Claire.* (p. 150)

The studies of Gleitman et al. make it very clear that by the age of about five, some children are capable of reflecting on their language in a very sophisticated way (but see Moore, 1975; Hakes, Evans, & Tunmer, in press).

Children of this age can also make some judgments about morphology. Bogoyavlenskiy (1957/1973) asked Russian children about differences in meaning conferred by the addition of diminutive, augmentative, and agentive suffixes to nonsense words used in short stories. The word *lar* (applied to a make-believe animal) was distinguished from *larishche* (a big lar) and from *larënok* (a small one). However, very few of the children (aged between five and eight) were able to identify the word *endings* as the elements that actually made the difference to the stem meanings.

Lastly, children will make explicit judgments about the sound system, usually regarding their own ability to pronounce a specific word. N. Smith (1973) reported the following exchange between himself and his son, aged two-and-a-half:

Father: Say *jump.*
Child: Dup.
Father: No, *jump.*
Child: Dup.
Father: No. *Jummmp.*
Child: Only Daddy can say *dup!* (p. 10)

Smith's son also commented spontaneously that he could now pronounce some new word or sound sequence within a word. After nearly a year of pronouncing *quick* as "kip," he announced: "Daddy, I can say *quick*" (p. 10). These observations are paralleled in Leopold (1949), whose older daughter Hildegard

showed a similar interest in her own improved pronunciation. She had at first pronounced *merry-go-round* as [mɛkəriraund], but at the age of 4;1, announced mastery of the right pronunciation: "Watch my mouth: merry-go-round" (vol. 4, p. 57). In speaking German, she had had considerable difficulty with the pronunciation of *Verzeihung*, confusing it with *Zeitung*, but around age four said one day: "Look at my lips: Verzeihung ([fər'saiuŋ])." A few months later, when talking about an upcoming visit to her German grandfather, Hildegard commented on the difference between the English and German pronunciations of her name: "Opa might call me Hildegard [-d], in German though: Hildegard [-t]," (vol.4, p. 75).

Judgments like these--of appropriateness, of complexity, and of form--all suggest that children become aware of language on several different dimensions at once. They attend to the kind of speech appropriate to different ages and social roles and at the same time begin to distinguish odd sentences from acceptable ones, simple sentences from more complex ones, and their own pronunciations from those of others. Their explicit comments on language seem to begin around the age of three.

APPLYING RULES TO NEW INSTANCES IN PRODUCTION

Another indication that children are aware of language is their adherence to rules in producing it. Presented with unfamiliar or nonsense words, for example, they can add the appropriate plural, possessive, or past tense endings. Their ability to do this, many have argued, is a measure of their knowledge of the general rules for applying specific inflections. Berko (1958), using nonsense words that the children could not have heard before, was able to show that five- and seven-year olds were very good at applying appropriate noun and verb endings in English. They had more difficulty with endings for the comparative (*-er*) and superlative (*-est*).

In a similar study of Russian children, Bogoyavlenskiy (1957/1973) used the names of various objects and asked five- and six-year olds what they would call a baby ostrich, a baby oak-tree, a baby nose, etc., to see whether they could supply the appropriate diminutive endings. All the children were successful although some did not distinguish between those diminutives that are normally applied only to animate nouns and those that are not so restricted.

Even younger children sometimes give striking evidence that they have mastered a particular word ending. They over-regularize and apply the ending to words that do not, in fact, take it, producing every English past

tense, for instance, with the suffix *-ed*, e.g., *breaked, goed,* and *doed,* alongside *jumped, walked,* and *wanted* (Cazden, 1968; Brown, 1973). And Leopold (1949) reported that his daughter, aged 3;3, one day amused herself by adding the diminutive *-ie* ending to all sorts of English words not usually so modified, e.g., wall-*ie,* chair-*ie,* lap-*pie,* and books-*ies* (vol. 4, p. 45).

Rule use, however, requires that one distinguish between implicit knowledge for everyday use and awareness. The addition of a word ending, it could be argued, is simply a matter of everyday usage. Children are always learning new words. However, deciding out of context which endings can be applied presumably does require some level of awareness. Yet only when children begin to make explicit comments on word endings or irregular paradigms can we claim unequivocally that they are reflecting on their language. For instance, Gleitman et al. (1972) reported the following question from a four-year old (p. 139):

Mommy, is it AN A-dult or A NUH-dult?

Leopold (1949) noted a similar question from his daughter, aged 3;11:

You know, Grandpa says 'yourn', 'This is yourn.' Why does he do that?

Hildegard's observation about her grandfather was correct, but, interestingly, she had not seen him for several weeks. A few months later, she pointed out how one distinguished singular and plural forms in German, as follows (vol. 4, p. 61):

If there is one, you have to say *Schuh;* if there are two you have to say *Schuhe.*

Such explicit comments about morphology, however, are not very common.

CORRECTING ONESELF AND OTHERS

Children make both spontaneous and prompted corrections or repairs to their speech from a very early age. In order to make any repair, children must be able to reflect on their utterances so as to work out what has to be repaired on any one occasion. Repairs seem to spring, for the most part, from a concern with successful communication.

Spontaneous and Prompted Repairs

Spontaneous repairs appear very early. Both Bohn (1914) and, more recently, Scollon (1976) reported that the very young children they studied repeated words, changing pronunciations until they were able to make themselves understood. The following is a typical example from a girl aged 1;7:

Brenda: [ʂ] (holding up mother's shoe)
[šI]
[š]
[šIš]
[šu]
[šu?]
[šuš]
Mother: Shoes! (Scollon, 1976, p. 150)

With each repair, Brenda got closer to the adult form *shoes*; eventually her mother recognized the word she was trying to say.[1]

Slightly older children repair word endings, word order, and even their word choices. Zakharova (1958/1973), for example, found that preschool Russian children often experimented with case endings for unfamiliar words, pronouncing them out loud, and trying out several different endings before deciding on one. And, she noted, "observations of children's speech show that one may encounter, in the younger preschool children, independent corrections of grammatical forms constructed from familiar words as well" (p. 284). Leopold (1949) reported one repair of a word from Hildegard, aged 5;4, speaking German (vol. 4, p. 114):

Zweimal, das is das dreite--das dritte.

Reports of repairs to word order and to word choices appear in a number of studies. Snyder (1914) noted several different types of repair in the speech of a two-and-a-half year old, including addition of a modifier, e.g.,

Dat water--dat dirty water.

change of a word, e.g.,

Might take paddle out boat--might take paddle out canoe.

and change of word order, e.g.,

Down sand beach I been--I been down sand beach.

Many of the spontaneous repairs young children make, then, seem to be motivated by their wish to make themselves understood. They modify their pronunciation, correct their word choice, add modifiers or clarifying phrases, and alter the syntactic form of their utterances. But some repairs may be repairs to that part of the system they are most conscious of at a particular moment. For example, a child working out past tense endings may temporarily be more sensitive to mistakes on those endings.

Several investigators have also suggested that prompted repairs--those *requested* by the listener--may play a critical role in the process of acquiring a language. These repairs force the child to examine what he has just said and identify the source of misapprehension (e.g., Stokes, 1976, 1977; Cherry, in press; Garvey, in press). This is illustrated by the following exchange between three children playing "catch" in a swimming pool (Jefferson, 1972). Steven, aged six is *It* and is counting up to ten while Susan and Nancy, both eight-year olds, are "hiding" by swimming to the middle of the pool:

Steven: One, two, three [pause] four, five, six [pause] eleven, eight, nine, ten.
Susan : E*le*ven? --eight, nine, ten?
Steven: Eleven, eight, nine, ten.
Nancy : E*le*ven?
Steven: Seven, eight, nine, ten.
Susan : That's better.
(Whereupon the game resumes). (p. 295)

The additional stress placed on *eleven* by both eight-year olds presumably helped tell Steven which word he had to correct. Adults and older children who ask for repairs force younger children to reflect on what they are saying and how they are saying it. Requests for repairs, then, may be an important factor in making children monitor their own language.

Correcting Others

From about four years on, children also seem to become more aware of the "mistakes" of younger brothers and sisters. They comment on them, ask others the reason for them, and often attempt (not always successfully) to correct them. Consider the following comment from Anthony, aged 5;4, about Michael, aged 2;4:

Michael: Record 'top. Mine!
Anthony: Mike says only *top* instead of *stop*.
(Weir, 1966, p. 164)

On other occasions, Anthony corrected his other brother, David, aged 3;7, for instance by supplying a missing syllable and, in doing so, saying it with extra stress:

David : I don't have a raser, Antony. I don't have dis.
Anthony: David, you need a *e*raser.
(p. 165)

These explicit comments and corrections can only stem from a growing awarenes

on Anthony's part of pronunciation and form in English.

SUPPLYING APPROPRIATE INTERPRETATIONS

Another situation that may tap children's awareness of language is one in which they are asked to supply interpretations for words and sentences. This they can do by giving definitions or providing paraphrases.

Studies of word definition have usually been designed to trace changes in the complexity of definitions being offered at different ages. Most of them have involved asking children questions like "What is an X?" or "What does X mean?" for terms like *father, south, hole, cup,* etc. (see Piaget, 1926, 1928; Stern & Stern, 1928; Leopold, 1949; Asch & Nerlove, 1960; Wolman & Barker, 1965; Chukovsky, 1968; Al-Issa, 1969; Haviland & Clark, 1974; Andersen, 1975). The earliest definitions offered tend to be phrases in which the relevant words commonly occur: for example, for *hole*, one hears "dig a hole" or "a hole is to dig," and for *cup* one usually hears "what you drink out of" from most children under five or six. As Bolinger (1976) has pointed out, what both children and adults usually do when asked for a definition is first come up with some common phrase in which the word is used. It is only as children get older that they begin to give more complex (and vaguer) dictionary-like definitions. For instance, nine-year-olds may define *cup* as "a curved shaped object for drinking out of, with a hole in the top--to hold in your hand" or as something that will "hold stuff, cup-shaped, sometimes has a handle--sometimes it can be a mug" (Andersen, 1975, p. 97).

But the tendency to offer common phrases or collocations makes definitions a rather indirect route for tapping children's awareness of word meanings. Indeed, giving a definition itself has several prerequisites. The child has to know what a definition is and, on top of that, what constitutes a good definition (see Litowitz, 1977; Johnson-Laird & Quinn, 1976). These complexities make word definitions appear less useful for the study of awareness.

Some investigators have elicited definitions, or rather paraphrases, less directly. Gleitman et al. (1972) asked children aged five and over to make judgments about different sentences--whether they were all right as sentences of English and whether they meant the same thing as other sentences suggested by the experimenter. In making their judgments and explaining them, even the younger children frequently came up with appropriate paraphrases for the sentences in question (see also Hakes et al., in press).

Other studies seem to have elicited paraphrases by accident. For instance, Slobin and Welsh (1973) found that some types of relative clause given to a two-year old to imitate were nearly always repeated back in paraphrased form, e.g.,

Mozart who cried came to my party → Mozart cried and he came to my party;

The owl who eats candy runs fast → Owl eat a candy and he run fast;

The man who I saw yesterday got wet → I saw the man and he got wet.

However, there have been few systematic attempts to get children to give alternative renditions or paraphrases to find out which sentences they consider to be related in meaning and which not (but see further Grimm, 1975; Smith, 1974).

ANALYZING LANGUAGE INTO LINGUISTIC UNITS

Most research done on children's ability to isolate particular linguistic units has been done in connection with reading. The ability to identify words, syllables, and individual sounds has long been considered helpful and even essential in learning how to read (e.g., Francis, 1973). Children have been asked to identify words, morphemes, syllables, and sound segments (e.g., Bogoyavlenskiy, 1957/1973; Zhurova, 1964; Reid, 1966; Rozin, Poritsky & Sotsky, 1971; Holden & MacGinitie, 1972; Kingston, Weaver, & Figa, 1972; Gleitman & Rozin, 1973; Fox & Routh, 1975).

The techniques used to elicit such information often seem to have been too complicated for children to follow and, as a result, many investigators have concluded that children do not have the skill to break utterances down into different units until age six or even later (e.g., Bruce, 1964; Holden & MacGinitie, 1972). More recently, however, Fox and Routh (1975) devised a way of eliciting such information from children as young as three or four with considerable success. What they did was ask children to repeat progressively smaller and smaller "bits" of sentences given them by the experimenter Given *Peter fell,* for example, the children would be asked to "say just a little bit of it," namely just *Peter* or just *fell.* With this technique, Fox and Routh found that four-year olds were almost perfect at breaking sentences down into words and syllables. Segmenting syllables into sounds was much harder, although there was improvement with age (see also Liberman, 1973).

Some children seem to discover segmentation into morphemes or syllables quite spontaneously. One of Grégoire's (1947) sons at the age of four commented that the word *méchanceté* was made up of the stem *méchant* ('naughty')

plus an ending, which he pronounced "stē," for which he then demanded a meaning. He also asked whether there wasn't a word *gentisté* from *gentil* ('nice'), plus *sté* -- to parallel *méchanceté* in both form and meaning (its opposite). Besides trying to construct similar word forms, children also use their observations of whole or partial homophony to make up etymologies for words. Leopold (1949) reported that Hildegard related *sand* and *sandal* on this basis (see also Kaper, 1959). Some children spontaneously discover how to break up syllables into their component sounds and how to sound out new words (see, for example, Slobin, this volume). Children who learn to write before they are taught to read also seem to be aware of this level of analysis and work out very reasonable letter-to-sound correspondences (see further Read, this volume).

Another domain of investigation that belongs under this heading is that concerned with what children think words are. This question has been tackled in several ways. Piaget (1929) originally approached it by asking when children became aware of the arbitrary connection between words and their referents (see also Vygotsky, 1962; Markman, 1976). More recently, Papandropoulou and Sinclair (1974) have tackled it by asking children questions like "What is a word?," "How do you know whether something is a word?," "Say a long/short/difficult word," and "Say a word you have invented [sic] yourself." By five or so, children answer the first question by describing a word as "what you use to talk about something" or "what you use to name something." At the same time, they have difficulty providing instances of long, short, or difficult words and usually draw only on nouns as examples. By six or seven, children are often able to identify words explicitly as parts of larger meaningful expressions (see further Berthoud-Papandropoulou, 1976; Johnson, 1976).

The ability to analyze utterances into smaller and smaller linguistic units and the ability to identify and talk about those units changes with age. But, as these recent studies have shown, the actual questions one asks children about such knowledge are critical. Many past studies may have seriously underestimated how aware children are of different linguistic units and what they know about both their structure and function in language.

PRACTICING AND PLAYING WITH LANGUAGE

Children show another type of awareness in practicing language. They repeat set sentence frames, substituting one word for another; they try out

different sentence types; they practice newly acquired sounds and words, saying them over and over again, and so on. At times, such practice may be difficult to distinguish from actual language use, but one possible criterion is whether the child is directing his utterance to an addressee with any possible communicative intent. In the examples cited below, where the children were practicing sentence frames, there was no addressee:

(1) Child aged 1;9: Daddy walk on grass / R [child's name] walk on grass--no / Daddy walk on grass--yes / Daddy walk on snow / snow deep / know that word (Bohn, 1914, p. 586).

(2) Child aged 2;9: Train go on track / car go on track / wheel go on track / little wheel go on track (Snyder, 1914, p. 421).

Practice like this, where children repeat syntactic or phonetic patterns, was examined in great detail by Weir (1962) who recorded her two-and-a-half year old's monologues produced when he was alone in his room before falling asleep. A typical practice session might involve changing from one sentence type to another (e.g., from negations to questions to statements), substituting pronouns, adjectives, nouns, and verbs in the appropriate slots, producing question-and-answer sequences, and with all this recapitulating some of the day's events. The following is a fairly typical extract:

> Not a yellow blanket / the white / white / what color / what color blanket / what color mop / what color glass / put on a blanket / white blanket / and yellow blanket / where's yellow blanket / there's a hat / there's another / there's hat / there's another hat / that's a hat / there is the light / where is the light / here is the light (Weir, 1962, p. 112).

Jespersen (1922) observed Danish children producing similar bedtime monologue where they practiced sentences with frequent substitutions of words. He also noted some daytime practice. One child, for instance, practiced plural endings as he turned the pages of a book (see also Johnson, 1928).

Children also practice pronunciation, especially of newly acquired sounds. One evening Weir's child produced the following fragment of a monologue:

> Back please / berries ([bɛ̃rĨz]) / *not* barries ([bæ̃rĨz]) / barries, barries / *not* barries / berries / ba ba. (p. 108)

This practice occurred just after the child had first seemed to become aware of the contrast between the two vowels, triggered perhaps by his intense

interest in strawberries. Another child tried out his newly mastered [r] as follows:

> Stoly / stoly here / want a stoly / Dave, stoly / story, story / story's / de hat / story's de big hat / story's a hat
> (Weir, 1966, p. 163).

Trying to get the sounds right like this seems to start very early. Bohn (1914, p. 579) reported that his child would consciously "repeat a word many times in an effort to pronounce it correctly" from the age of 1;7 on. Grêgoire (1947) made similar observations, as did Scollon (1976). This form of practice is clearly relevant to the repairs that even very small children make in their efforts to be understood. Indeed, it might be hard to distinguish practice from repairs at times, except for the presence of an addressee and the child's obvious desire to communicate--both of which would suggest that repeated attempts at a word in the presence of a listener should be labelled as repairs. Nevertheless, it is clear that practice and repairs both require some monitoring on the child's part of what he has just said.

Rhymes, Puns, and Riddles

Practice is often a form of play with language, and exchanges of nonsense may exploit different properties of the language being acquired. Children make up rhymes, change the vowels in nonsense syllables, imitate each other but alter the sounds, intonations, or even stress, and maintain long playful dialogues (e.g., Johnson, 1928; Chukovsky, 1968; Cazden, 1974; Teece, 1976; Garvey, 1977). This early play also shows up in rhymes that accompany many children's games (Opie & Opie, 1959). These game rhymes, surprisingly uniform from place to place, are used in many different play activities--for counting-out, giving crooked answers, jeering, parodying nursery rhymes and hymns, and tricking the listener and leading him astray, to list only a few.

Some of the games embodied in such rhymes revolve around puns and riddles. Several observers have collected examples of those popular at different ages and tried to find out what changes take place in children's appreciation and understanding of these linguistic games (e.g., Chukovsky, 1968; Herron & Sutton-Smith, 1971; Goodnow, 1972; Shultz, 1974; Shultz & Horibe, 1974; Aimard, 1975; Sutton-Smith, 1976; Sanches & Kirschenblatt-Gimblett, 1976). These are their findings.

The commonest riddles, according to Sutton-Smith (1976), are homonymic, requiring an implicit reclassification of the words in the initial question,

as in:

> Q. Why did the dog go out in the sun?
> A. He wanted to be a hot dog.

In this example, a class (dogs) and a class attribute suggested by the question (namely, dogs exposed to high temperatures) are reclassified in the answer to form a new class (something edible). This type of riddle makes up about sixty percent of those elicited from children between six and fourteen.

Other riddles require explicit reclassification, as in:

> Q. What has an ear but cannot hear?
> A. Corn.

In these, a classification is presented and then one of its criterial attributes is negated. Other riddles depend on multiple classifications, as in the following:

> Q. What is the difference between a teacher and an engineer?
> A. One trains the mind, the other minds the train.

In riddles like these, the homonym is often a double one. Such riddles seem particularly common in French, perhaps because there are so many homonyms available. The riddles or devinettes collected by Migeon and Baslaar-Hoevenaars (1976), for example, are virtually all homonymic, and many involve multiple classifications as well, e.g.:

> Q. Quelle différence y-a-t-il entre la Tour Eiffel et une chemise portêe pendant huit jours?
> A. La Tour Eiffel est colossale et la chemise est sale au col.
> Q. Pourquoi le paysan n'est-il pas fumeur de pipe?
> A. Parce que la pipe on doit la bourrer avant de fumer et que le paysan doit fumer avant de labourer.

Children's ability to appreciate and make up puns and riddles seems to mark an awareness of language in yet another way: they must be able to recognize potential reclassifications and realize that two sequences with the same sounds can have quite different meanings.

Figurative Language

A later skill that may require even more reflection is the production and understanding of figurative speech. To use language metaphorically, children have to be able to extend terms from one domain to another (e.g., apply adjectives for physical dimensions to psychological ones), make appro-

priate comparisons between qualities or entities in different domains (as in the metaphor, *The man is a stone*), take the part for the whole, and so on. Many of these operations require reflection in deciding whether a metaphorical expression is appropriate or not (e.g., Gardner, Kircher, Winner, & Perkins, 1975), whether a term can be extended to other domains (e.g., Gardner, 1974; Winner, Rosenstiel, & Gardner, 1976; Gentner, 1977), and why some metaphors are appropriate and others not (Gardner et al., 1975).

The ability to reflect on figurative language has been used as one measure of cognitive development (e.g., Billow, 1975; Smith, 1976), and earlier studies generally assumed that children did not understand metaphorical language until the age of ten or so (e.g., Asch & Nerlove, 1960). However, somewhat younger children produce appropriate metaphors on occasion (Gardner et al., 1975; Gentner, 1977) and even give reasons for why a metaphor is appropriate when the figure of speech involves qualities of objects they know well (Winner & Gardner, 1977). Using figurative language, though, seems to demand a slightly different kind of reflection from that exercised in puns and riddles. It requires that children look for analogies and even unexpected parallels among real-world relationships. Puns and riddles, on the other hand, seem to be more firmly grounded in children's everyday exposure to language.

Practicing and playing with language, whether trying out newly acquired sounds or sentence patterns, putting together syllables or words that rhyme, or making up riddles, reflect a growing capacity to use language outside a directly communicative context. Figurative language stands a little to one side in this respect because it is communicative but requires a deliberate stretching of the language to evoke new associations and images. A different kind of sophistication and knowledge seems to be needed to exploit the figurative resources of a language to the full.

TYPES OF AWARENESS

This preliminary taxonomy has presented some of the sources that might establish the degree to which children are aware of and can actively reflect on the different properties of language. Some of the areas I have reviewed probably have more potential than others for systematic investigations into children's conceptions of language. But which hold the most promise for future study? I have tried to provide a preliminary answer by discussing the types of evidence already available from naturalistic observations, interviews, and experimental studies pertinent to linguistic awareness. In doing this, I have taken "awareness" in its broadest sense and illustrated several different types of awareness. But defining more precisely what awareness is is what I want to turn to next.

The notion of awareness has been studied in other areas of development under the label *metacognition*. Flavell (1976, p. 232) has characterized this as one's knowledge about one's own cognitive processes and their products:

> "I am engaging in metacognition (metamemory, metalearning, meta-attention, metalanguage, or whatever) if I notice that I am having more trouble learning A than B; if it strikes me that I should double-check C before accepting it as a fact; if it occurs to me that I had better scrutinize each and every alternative in any multiple choice situation before deciding which is the best one; if I sense that I had better make a note of D because I may forget it...."

The major concern of these developmental studies has been with the regulatory role of metacognition in remembering, learning, attending, or carrying out actions, in order to achieve particular goals (e.g., Piaget, 1974; Kreutzer, Leonard, & Flavell, 1975; Flavell & Wellman, 1976; Flavell, 1977; Brown, 1978). Brown and DeLoache (in press) have listed a number of metacognitive skills that indicate awareness: predicting the consequences of an action or event, checking the results of one's own actions (did *X* work?), monitoring one's ongoing activity (how am I doing?), testing for reality (does *X* make sense?), and coordinating or controlling deliberate attempts to learn and to solve problems. Do children call on these same skills when it comes to language? In general, the answer seems to be "yes," although there is at least one additional skill that has to be added in classifying types of linguistic awareness, and that is the ability to reflect on the product of an utterance.

The different types of awareness uncovered by the present review are classified in Table 1 under the particular metacognitive skills involved. These skills have been listed roughly in their order of emergence, from most to least basic. The first is the ability to *monitor* one's own ongoing utterances. This activity is a prerequisite for spontaneous repairs, practice, and adjustments of one's speech style to different listeners. Another skill is the ability to *check* the result of one's utterance. Even very young children check to see if the listener has understood, and if not, try again. Rather later, they start to comment explicitly on their own utterances and

Table 1

METACOGNITIVE SKILLS AND AWARENESS OF LANGUAGE

1. *Monitoring one's ongoing utterances*
   - (a) Repairing one's own speech spontaneously
   - (b) Practicing sounds, words, and sentences
   - (c) Adjusting one's speech to the age and status (and language spoken) of the listener

2. *Checking the result of an utterance*
   - (a) Seeing whether the listener has understood or not (and then repairing when necessary)
   - (b) Commenting on the utterances of oneself and others
   - (c) Correcting the utterances of others

3. *Testing for reality*
   - (a) Deciding whether a word or description works or not (and if not, trying another)

4. *Deliberately trying to learn*
   - (a) Practicing new sounds, words, and sentences
   - (b) Role-playing and "doing the voices" for different roles

5. *Predicting the consequences of using inflections, words, phrases or sentences*
   - (a) Applying inflections to "new" words out of context
   - (b) Judging, out of context, which utterance would be politer, or which more appropriate for a specific speaker
   - (c) Correcting word order and wording in sentences earlier judged "silly"

6. *Reflecting on the product of an utterance*
   - (a) Identifying linguistic units (phrases, words, syllables, sounds)
   - (b) Providing definitions
   - (c) Constructing puns and riddles
   - (d) Explaining why certain sentences are possible and how they should be interpreted

on those of others. They also correct others. Another skill is *reality testing:* children check on whether a particular word or phrase has "worked" in the sense of getting the listener to understand what they were saying. This testing has a counterpart in prompted corrections where parents at times insist on veridical reference but don't bother to correct grammatical forms (see Clark & Clark, 1977, for a review). A fourth metalinguistic skill is that underlying deliberate attempts to *learn* language. Children practice not only sounds and sentence structures but also the speech styles characteristic of different roles.

The last two skills listed in Table 1 seem to emerge rather later than the others. In *predicting* the consequences of using particular forms, children use language or make judgments about it out of context. They supply the appropriate inflections to indicate plural, past tense, or diminutive; they judge utterances as appropriate to particular settings or speakers; and they correct sentences that are "wrong." Finally, in *reflecting* on the product of an utterance, children may be doing something that is never called for in other forms of metacognition. With language, it is possible to reflect on language structure independent of its actual use. Children identify specific linguistic units--anything from a sound up to a sentence; they provide definitions of words; they construct puns and riddles, and exploit other forms of verbal humour; and they explain why some sentences are possible and how they could or should be interpreted. The classification in Table 1, then, includes all the instances of awareness considered earlier.

With age, children show increasing awareness of language. From the start, they seem to be aware of both form and function. In monitoring what they say, they make spontaneous repairs and practice sounds and sentences from as early as one-and-a-half or two. They also check on whether their listeners have understood them. A little later, by three or four, they begin to adjust their speech style to their listeners, comment on their own utterances and even comment on what they can't do (Smith, 1973; Markman, 1977), ask the occasional question about linguistic forms, and begin to correct other speakers. They also practice different speech styles through role-playing, and grow progressively more sensitive to what their listeners will and won't be able to understand (Clark & Clark, 1977). In Table 1, I have tried to capture this growth of awareness by ordering the different phenomena approximately from simpler to more complex under each metacognitive skill. Given the incomplete nature of the observations currently available, however, this

ordering is necessarily very tentative.

Earlier, I alluded to the difficulty in distinguishing at times between everyday language use and implicit knowledge where some degree of prediction may be playing a role. Consider the acquisition of the past tense inflection in English. One could argue that in order to apply the past tense ending, two-year olds must be aware of it at some level to identify and select it rather than other possible verb endings to denote completed actions. But not until five or so at the earliest do children appear able to identify the *-ed* ending explicitly as the linguistic unit that adds a past time meaning or make judgments about the appropriate past tense forms of strong verbs like *bring* (see Slobin, this volume). Similarly, they show implicit knowledge of different linguistic units--words, syllables, and phonetic segments --long before they can reflect on those same units explicitly. Implicit knowledge, then, bears some resemblance to Vygotsky's (1962) first stage in the acquisition of knowledge--virtually automatic, unconscious acquisition. This contrasts with the later gradual increase in active, conscious control over knowledge already acquired--Vygotsky's second stage. The latter, roughly speaking, is what is represented in Table 1.

Children's explicit judgments about language presumably depend on the depth of their knowledge at each age. But do all children follow a regular progression in their reflections? Do some children concentrate on one aspect of language where others concentrate on another? One's experience with language presumably has some effect here. Learning two languages at once, for instance, might heighten one's awareness of specific linguistic devices in both. We already know that adult speakers may differ considerably in their ability to reflect on language (e.g., Gleitman & Gleitman, 1970), and these differences presumably correspond to how far children have happened to go in becoming aware of the language they speak.

CONCLUSION

The question I have left for last is perhaps the most important: What role does children's awareness play in acquisition itself? Children start out with a very elementary version of language and, to move on to the next stage, must realize that it is inadequate or "wrong." They must therefore become aware of when their language "fails." This means that they have to check the results of their utterances and, when necessary, repair them. Evidence that children do just that spontaneously is already available. Their

earliest repairs are of single word utterances that they repeat, with changing pronunciation, until the listener understands what they are trying to say. Later, they repair more than single words: they select more exact descriptions for picking out referents, correct their word order, select the right speech style (and even the right language) for the listener, and so on. And, as early parental requests for clarification show, such repairs can also be elicited. Systematic study of repairs, then, seems likely to prove an important source of information about linguistic awareness.

The other phenomena reviewed here show less promise for discovering linguistic awareness--at least in very young children where awareness may be most critical to acquisition. Judgments of appropriateness, complexity, and form are next to impossible to elicit from very young children and therefore tell us too little too late. The same is true of supplying appropriate interpretations out of context, and of applying rules to new instances. Analyzing language into explicit units also emerges rather late, possibly because children have first to learn a vocabulary for talking about how they use language (see Slobin, this volume). Practice appears much earlier. But because it requires memory for what utterances sound like and the units they consist of, it is probably not as informative as repairs are, even though it emerges at about the same age. All these phenomena, however, are probably critical for filling in our picture of what children are aware of as they get older.

The task from here on, then, is not just to find out what children are aware of, but to go further: first, to find out how awareness itself develops and what relations there are between different types of awareness, and secondly, to establish what role awareness plays in the acquisition of language. The present discussion, I hope, represents a first step in that direction.

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FOOTNOTE

1. Repetitions and repairs generally are all too often "edited out" of transcripts of children's speech, and they are even harder to catch in paper-and-pencil recordings.

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